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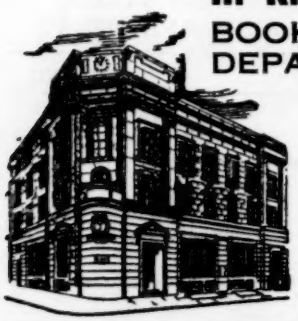

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ASSISTANT PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL, LONDON

(*Concluded from p. 1035*)

At the beginning of these lectures I adopted a wide use of the term "prevention" as applied to pulmonary tuberculosis, and included within it the prevention of further advance of progressive lesions after their presence has been recognised. The likelihood of this being achieved in a particular instance is intimately connected with the prognosis of the "case." One of the objects of the anti-tuberculosis measures embodied in the national tuberculosis scheme has been to improve this prognosis.

The ratios of new cases to deaths, published annually by the Ministry of Health (e.g., 1935a), give a rough indication of changes in the *average* prognosis of diagnosed cases of pulmonary tuberculosis over the past two decades, and so enable us to judge approximately the success of this endeavour. Unfortunately these ratios actually decreased between 1913 and 1922, and changed but little between 1923 and 1935, these being comparable years. While a number of minor factors affect their significance, it would be difficult, in view of their failure to increase, to assert that *average* prognosis has improved materially. In other words a decline in incidence of new cases rather than an improvement in their prognosis appears to have been mainly responsible for the decline in mortality. This view is supported by the conclusions of Hartley, Wingfield, and Burrows (1935), based on the records of the Brompton Hospital Sanatorium, Frimley, that the prognosis of an average case of pulmonary tuberculosis has not materially changed during the past thirty years, though that of a small selected class, treated by collapse therapy, has considerably improved.

It follows that unless we are to rely upon general social improvements, and protection from contacts, to continue the reduction in incidence of pulmonary tuberculosis, we shall be faced with the serious problem of how to improve the prognosis. Such improvement might be achieved by earlier diagnosis, better treatment, and better after-care—the last of these having already been discussed.

EARLIER DIAGNOSIS AS A MEANS OF IMPROVING PROGNOSIS

That there is room for earlier diagnosis is generally agreed.

Of 32,000 patients discharged from, or dying in, approved residential institutions in England and Wales during the year 1935, 63 per cent. were classified at the time of admission as belonging to Class *T.B. plus*, Groups 2 or 3 (intermediate or advanced); this figure, if anything, understates the position since Class *T.B. minus* is not also subdivided into groups. The total number of Class *T.B. plus* cases was 23,000, all of which must have been infective and diagnosable for an unknown period, and of these only 12 per cent. were classified in Group 1 (early or slight), the remaining 88 per cent. being already in an intermediate or advanced stage (Ministry of Health 1930, 1935d).

It is also believed that an increase in the proportion of persons diagnosed in the slight or early stages would be of great benefit. This view is founded upon two pieces of evidence. One is that recognition and treatment is an actual advantage. This may appear obvious from clinical experience, but its statistical demonstration is not easy (see MacNalty 1932c), and has only lately been achieved with any degree of certainty (Hartley, Wingfield, and Burrows 1935). The other piece of evidence is that, whatever the particular form of treatment, the prognosis is closely related to the extent of lung involvement at the time of diagnosis.

Thus Trail and Stockman (1931), in their follow-up of patients of Midhurst sanatorium, found that the survival-rate of early sputum-positive cases five years after admission was twice that of advanced cases. In his analysis of the ultimate results of sanatorium treatment MacNalty (1932b) concludes that "a patient's chance of survival is enormously increased in proportion as he is admitted to sanatorium treatment in the early stage of his disease." The London County Council (e.g., 1935b) consistently reports similar findings as to survival and fitness for work among its patients five years after residential treatment. Bentley (1936b), in his analysis of the pneumothorax cases of the L.C.C. since 1922, stresses the greater likelihood of finding unilateral disease and obtaining complete collapse (on which two factors prognosis largely depends) where the disease has not progressed for long. And Hartley, Wingfield, and Burrows (1935), in their study of the after-histories of Frimley patients, conclude that the mortality in their series depended almost entirely upon the classified stage of the disease at the time of entry, and was relatively unaffected by sex or age; while the finding of a strong relationship between radiographic extent of the disease and the prognosis provided similar evidence from a different angle.

The apparent lack of improvement in average prognosis in the past twenty or thirty years, together with the fact that prognosis is related to the stage at which the disease is recognised, suggests that the proportion of cases diagnosed in the slighter or earlier stages has not materially increased during this period. Direct comparison is difficult because of changes in personnel and point of view, but the following figures are of interest.

They are obtained from a county whose local tuberculosis scheme is unsurpassed in efficiency, and for better comparison the analysis is confined to sputum-positive cases. In the triennium 1926–28 there were 2394 new sputum-positive cases, and in the triennium 1933–35 this total was 2234. The percentage of these cases classified as belonging to Group 1 and Group 3, respectively, was 13·5 and 27 in the earlier triennium, and 12 and 21 in the later triennium (Lancashire 1926, 1927, 1928, 1933, 1934, 1935a).

While the interval is short, these figures, taken at their face-value, show little sign of earlier diagnosis under the best conditions of present practice.†

It is clear, therefore, that diagnosis remains unsatisfactorily late, and that every effort should be made to advance it so as to improve prognosis.

BETTER TREATMENT AS A MEANS OF IMPROVING PROGNOSIS

The extent to which modern methods of treatment improve prognosis may be gauged from recent

* The Milroy lectures for 1937 delivered before the Royal College of Physicians of London on Feb. 18th and 23rd.

† A similar lack of increase in the proportion diagnosed as minimal tuberculosis (American classification) has been noted for the clinics operated by the health department of New York City during 1930–36 (Edwards 1937).

reports from institutions, including Midhurst sanatorium (Trail and Stockman 1932, Trail 1934), Frimley sanatorium (Hartley, Wingfield, and Burrows 1935), and the L.C.C. sanatoria (Bentley 1936b). It appears that the proportion of cases found suitable for pneumothorax treatment is relatively small (10 per cent. in the L.C.C. service). The chance of survival in all cases undertaken, considered together, is materially improved (by 20 per cent. at five years, in the L.C.C. series) by such treatment, the best results being obtained in those whose lesions are strictly unilateral and in which complete collapse is secured (accounting only for a quarter of the L.C.C. cases undertaken). This suggests that pneumothorax treatment has improved prognosis in a small selected category of cases, though it has not yet made a significant impression on the prognosis of the *average* tuberculous case. In the future the technique of other methods of collapse will probably improve and their range will widen, but this is less obviously likely with pneumothorax treatment. Its effect on average prognosis is likely to remain small and limited (4 per cent. increased chance of survival at five years, according to Bentley's estimate), *unless the proportion of suitable cases increases.* Since suitable cases and slight or early cases are in the main synonymous, the future usefulness of pneumothorax treatment on tuberculous patients *as a whole* appears to turn on more frequent diagnosis in the early stages. Such earlier diagnosis would be doubly useful since it should also help to eliminate potential or actual sources of infection for others.

Methods of Obtaining Early Diagnosis in the Past

What methods have been used to obtain early diagnosis? Why have they been a comparative failure? Is extension of these older methods, or the introduction of fresh ones, desirable to ensure better success?

CONSULTANT SERVICE

Until recently it was usual to date the onset of tuberculous disease in adults from the appearance of symptoms or physical signs. The consultant service of the dispensary system of the national tuberculosis scheme was based on this conception. To the patient has been left the initiative of obtaining the first medical interview. A "case" of pulmonary tuberculosis has therefore meant a case with symptoms or physical signs as well as radiographic abnormalities, and attempts at earlier diagnosis have been directed to shortening the interval between the development of symptoms that attracts the attention of the patient, and the recognition of progressive lesions.

Delay in diagnosis after the appearance of symptoms.—For purposes of discussion the interval between symptoms and diagnosis can be divided into two parts: (1) the patient has symptoms but has not yet sought medical advice; (2) he is under medical observation but his condition has not yet been diagnosed as pulmonary tuberculosis.

A common reason for delay in seeking medical advice is the hope of recovery without recourse to the doctor. Self-deception may be another reason; or personal courage, or the stigma attaching to the label of tuberculosis, may prevent him giving in. Other important causes for delay are economic: chief among these are the knowledge that a long period of sickness probably means a reduced family income, and possibly unemployment afterwards—factors that may prevent the patient consulting his doctor until he is incapacitated for work.

If the duration of symptoms before first medical interview is variable, so also is the period between the interview and the diagnosis. Burton-Fanning (1934) states that in one series of tuberculous patients there was undue delay by the patient in 20 per cent. of cases, and by the doctor in a—not coextensive—25 per cent. In another series (different investigator and criteria), the corresponding percentages were 20 and 35. These figures may give a crude indication of responsibility, but they are of more interest perhaps in suggesting that in the majority of cases there is no undue delay in diagnosis from the onset of *really definite* symptoms. The difficulty is that the first symptoms are often quite indefinite.

Efforts to reduce this delay.—While patients are left to decide whether they require treatment it is by no means easy to shorten the interval between symptoms and diagnosis. One method used for the purpose is publicity. "A larger number of persons who may be suffering from tuberculosis must be persuaded to submit themselves for examination" (Ministry of Health 1933). "The initiative to seek treatment when ill rests with the patient himself, and the only feasible remedy (for delay) lies in the education of the public as to symptoms and common dangers of tuberculosis and the need for securing prompt treatment" (Lancashire 1935c). Informative pamphlets have been issued by local health authorities and by the National Association for Prevention of Tuberculosis. For the family doctor, closer coöperation between the dispensary physician and himself has been secured, while he has been given the right to free sputum examination without intermediary. Since, in the country as a whole, there is little evidence on whether the interval between symptoms and diagnosis has been reduced in the past fifteen years, it is difficult to judge the effect of these specifically planned efforts. However, from the figures already given, it seems clear that even if diagnosis is now somewhat earlier in *time* it is not yet sufficiently early in *stage*. Two explanations of this comparative failure may be suggested.

One is that the planned efforts have not been adequately exploited—that enough has not been done to counter the economic factors that deter the patient from seeking advice, and that attempts to educate the public have not been sufficiently bold. Perhaps caution in the use of public instruction is partly due to anxiety lest "disease consciousness" or hypochondriasis be created in the nation (see Hutchison 1934). Again, while the family doctor has been given direct access to sputum examination, the even more important privilege of direct free radiographic chest examination and report has not yet been granted; and in the absence of this privilege intensive propaganda might burden hospitals with a large influx of unwanted out-patients.

The other possible explanation for the failure is that the attempt to secure sufficiently early diagnosis *solely* by efforts to shorten the interval between symptoms and diagnosis is unsound, being based upon an out-moded conception of the evolution of pulmonary tuberculosis. It is nowadays supposed that the first stage of the process is pulmonary first-infection, discoverable by the tuberculin test and sometimes also radiographically. After a short or long interval progressive pulmonary lesions develop, which are often detectable with X rays for some considerable time before they give rise to significant symptoms or physical signs, though indefinite or insidious symptoms may be present at this stage. During this asymptomatic (latent, preclinical) stage progressive lesions are, therefore, recognisable as such

by radiography but in no other way. They may be slight in extent; on the other hand they may develop beyond the size that corresponds to the Ministry of Health's Group 1 classification before they lead to definite symptoms. When significant symptoms do develop, they may be toxæmic or local or both. In this, the so-called clinical or manifest stage, the presence of progressive lesions is discoverable clinically, radiographically, and possibly bacteriologically. However, while tubercle bacilli in the sputum, with their implication of infectiousness, may be found early in this stage, they must be regarded as heralding a comparatively late and dangerous phase when the whole course of the disease is taken into consideration.

This view differs from the older conception, which has dominated the methods of tuberculosis dispensary *consultant* practice, chiefly in emphasising the asymptomatic stage of progressive lesions and by dating the onset of disease from the first appearance of these lesions and not from development of the symptoms. The deduction is that efforts, such as those already undertaken under the national tuberculosis scheme, to shorten the interval between the onset of significant symptoms and the making of the diagnosis cannot be expected *by themselves* to secure diagnosis at a time when the lesions are slight, non-infectious, and usually susceptible to treatment. In expanded form, and in conjunction with different methods, however, they should be of considerable use. On the other hand, attempts to recognise progressive tuberculosis from early but indefinite symptoms, such as slight general unfitness, are more likely to confuse than to assist.

Methods of Obtaining Early Diagnosis in the Future

PERIODIC MEDICAL EXAMINATION

What is required, therefore, is a procedure whereby progressive lesions may be discovered in the asymptomatic or preclinical stage and as early as possible in their development. This must involve the periodic X ray examination of persons supposed to be in good health. The length of the intervals between such examinations will be determined by the person's history, by the risk likely to be run, and by the presence of any suspicious X ray shadows or symptoms.

Such a method is essentially dynamic, for its aim is to detect changes—of progression and regression—and not merely to ascertain statically the extent and character of a lesion at a particular time. For this purpose it is well to secure if possible at least one negative examination to serve as the individual's base-line: hence the first examination should be carried out when he is likely to be in actual as well as in supposed health.

For economy of effort the unit for investigation would best be a group of persons who are normally associated together and therefore easily accessible—e.g., students of a college, or workers in a factory—rather than isolated and independent individuals. Since it affords a reasonable chance of detecting the pulmonary lesions before symptoms arise, and of forming a precise opinion as to the progressive nature of these lesions when detected, routine periodic examination should secure improved results from treatment and greater safety for the local community. If lesions develop between the periodic examinations the initiative will of course rest, as at present, with the patient; but with the established routine of medical examination, the provision of the medical service on the spot, and the warning to report particular complaints, he might be expected to take this initiative sooner than in ordinary practice. In any event, a limit is set to the delay; and whether the disease is detected before or at the next routine examination, the advantage of serial radiograms in helping to form an opinion will still apply.

Since it involves regular examination while in health, and since it takes the main initiative of medical interview away from the patient and gives it to the doctor, this method of obtaining early diagnosis rests upon a principle that differs profoundly from that underlying the patient-family-doctor-specialist relationship of the greater part of medical practice. But it is, of course, no new principle, for it has been adopted by many departments of the voluntary and municipal hospital and public health services—e.g., in child welfare and antenatal clinics, in school medical and dental inspection—as well as by many dental surgeons in private practice.

THE PRESENT CONTACT EXAMINATION SERVICE OF THE TUBERCULOSIS DISPENSARY SYSTEM

At the time of its introduction the national tuberculosis scheme could not have included routine periodic examination as a part of the functions of its *consultant* dispensary service, but an important step was taken in establishing the service for examination of *contacts*. This is, of course, no more than a step in the right direction. Since the first examination of a contact cannot be made until at least one case has been discovered in the household—and in nearly 10 per cent. this discovery is not made until there has been a death—it is often made too late to prevent the disease from spreading. And since, for the same reason, first examination of a contact takes place at a time when already he has a more than average chance of having a progressive lesion, the scheme may well fail in its intention to detect disease in its early stages.

Other limitations of the present contacts scheme lie in its execution. The proportion of home contacts examined as such is increasing: thus in London in 1935 the ratio of new contacts (adults and children) examined to new cases of tuberculosis taken on the dispensary registers was 1·8 to 1 (Bentley 1936c). But for the country as a whole in that year the ratio was only 1·2 to 1 (Ministry of Health 1935e), and, taking the 1931 census figure of 3·72 as the average number of persons per family in England and Wales, this represents slightly less than half the possible home contacts.

Again, while in some dispensaries all adult contacts are radiographed on first examination, in others this is only done if suspicious symptoms or signs be present; and while in some dispensaries the adult contact, more particularly the young adult contact, who is found normal on first examination is invited to return at regular intervals for re-examination so long as exposure continues and for some years afterwards, in others he is only instructed to return should he feel ill or alarmed. Even where close observation of apparently healthy young adult home contacts is being maintained, many local authorities would consider themselves unable to carry the expense of including serial radiograms in such periodic examination. If all new contacts (adult and child) of all new cases of tuberculosis in the London dispensary area were to be radiographed once a year for five years, and if the incidence of new cases were to remain at their present figure, then, according to a rough estimate made by Bentley (1936c), over 60,000 radiograms of home contacts (25,000 if limited to contacts of sputum-positive cases) would have to be taken and read annually in this area.

Finally, it should be noted that the examination of contacts (child and adult) accounted for 8 per cent. of the total number of cases of tuberculosis diagnosed by the dispensary service in 1935 (Ministry of Health 1935b).

In assessing this result, however, this figure of 8 per cent. may be compared with Lloyd and MacPherson's (1936) finding that 30 per cent. of their series of young adult cases of pulmonary tuberculosis gave a history of contact in the home, and therefore could presumably themselves have been located by a follow-up of the family of the earlier case. The comparison is crude, since the material has a different age-constitution, but it is nevertheless of some interest.

Although in its present form the examination of contacts under the tuberculosis scheme cannot be regarded as more than a partially developed example of periodic examination of adults in supposed health, the experience gained would be of immense value should any further step be contemplated. Whether the present service is likely to be expanded and modified, or to be eventually superseded, is a question that will be discussed later.

EXAMPLES OF SCHEMES OF PERIODIC EXAMINATION

During the past few years a number of group-schemes of periodic examination of supposedly healthy persons for tuberculosis have been introduced, especially in the United States. So far the majority of them have been applied to groups of young adults, more particularly those who run a greater than average risk of exposure to open tuberculosis. For this category of persons, such schemes probably constitute the best means of observation, especially if combined with Mantoux testing, which—whatever its other implications—should exclude the presence of tuberculous infection in some of them (see Hart 1932, 1937). The selected groups have included medical students (Hetherington, McPhedran, Landis, and Opie 1931, 1935), medical and other university students (Soper and Wilson 1935, Diehl and Myers 1936), and hospital nurses. In most of the schemes the standard interval between routine examinations has been a year, but the prescribed interval is of course reduced in individual cases when indicated.

At the first examination after the introduction of a scheme, a number of persons in presumed health have usually been discovered to have serious and open lesions. In one large university hospital in America these included the sister in charge of the labour ward, and also a nurse working in the operating theatre. On the other hand (Downes 1934, Barnard 1934), the number of cases with severe lesions (Stage 2 or 3), expressed as a percentage of total active cases found, tends, as would be expected, to be smaller than in a series of tuberculous cases diagnosed in the ordinary way. While the immediate discoveries usually provide immediate justification for the scheme as a method of case-finding, it is only after it has been in operation for some little time that its full benefits are experienced, with a further fall in the incidence of severe lesions among the active cases discovered.

Periodic examination of employees.—The scheme that has attracted most attention is one that does not come into the category of examination of young adults exposed to exceptional risks of contact, but applies to adults of various ages under ordinary conditions of work. It has been in operation since 1928, under the direction of Dr. H. H. Fellows and his associates, among the 13,000 *employee* population of the New York office of the Metropolitan Life Insurance Co., a mutual company with no stockholders.

Before the introduction of this scheme all employees had a complete physical examination once a year, but a chest radiogram was taken only if suspicious symptoms or signs were elicited. Now, however, in addition to their physical overhaul, they have an annual screening, followed by a film if thought desirable. For those with doubtful lesions the interval is deliberately shortened, and all employees are asked to report during intermediate periods if symptoms should appear. Persons discovered to have significant active lesions are kept under close supervision or are advised, though not compelled, to have sanatorium treatment; the latter can, if desired, be given at the company's own sanatorium, so that the scheme is self-contained. These persons return to work after treatment as soon as they are considered fit.

The success of this scheme can be judged from the following details. (The difference between the American and English classifications must be borne in mind, in particular the American subdivision of *T.B. minus* as well as of *T.B. plus* cases into three groups.)

A total of 201 new cases with significant active lesions requiring treatment occurred between 1929 and 1935 among employees, the incidence per 10,000 employee population being 28 in 1929, 23 in 1930, thereafter remaining between 19 and 24 (except for 1933 when it was 14). The incidence, per 10,000 employee population, of new active cases found in Stage 2 or 3 (moderately or far advanced) fell from 21 in 1929 (already a year after the scheme had commenced) and 15 in 1930 to 12 in 1931, 7 in 1932 and 1933, 6 in 1934, and 9 in 1935; while the number of new active cases found in Stage 1 (minimal), expressed as a percentage of the total new active cases, rose from 31 in 1929–30 to 62 in 1932–33 and 1934–35.

A series of 141 active cases admitted to the company's sanatorium was analysed in especial detail. In the majority the disease had been detected before they were ill in the ordinary sense, and before physical signs were present. One-third had no symptoms at the time of diagnosis; over half had not lost weight during the previous year; and only 13 per cent. admitted to having a cough. Half were discovered at a routine examination, and the other half as a result of seeking advice for symptoms in an interval period. Thirty-one per cent. of the cases were *T.B. plus* at some time during treatment. The percentage of the whole group detected in Stage 1 (minimal) was 65, which was stated to be five times the average admission-rate for minimal cases among United States sanatoria in general. Of those discovered as a result of symptoms, 60 per cent. were in Stage 1; for those discovered at routine examination the percentage was 69; while for those with no symptoms at the time of diagnosis it was as high as 79. Of the sputum-positive cases however—one-third of which were cases that had been diagnosed at a routine examination—only 27 per cent. were in Stage 1 and 12 per cent. were actually in Stage 3 (Fellows 1934a, 1934b, 1935; Reid 1933, 1934, 1935; Barnard 1934).

While it is too early to know the ultimate results of treatment of the active cases discovered by this scheme, it seems to have justified the hope of recognising lesions at an earlier stage than before. One would expect even better results if a film as well as, or instead of, screening were made at each routine examination, so as to give a permanent record for comparison.

SCHEME FOR STUDENTS OF UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

In 1935, having regard to the gathering movement in favour of student health services in this country, to the predominance of pulmonary tuberculosis among the incapacitating diseases of young adults, and to the retardation in decline of mortality from this disease at this age in recent years, the medical school committee of University College Hospital instituted a scheme of periodic medical examination of students occupied in clinical training or in qualified house appointments. (The examination, at present limited to the detection of pulmonary tuberculosis, may form part of a more comprehensive health service to be introduced later.) The scheme was placed under the charge of Mrs. Gwen Hilton as radiologist, and of myself as physician, and has now been in operation for a year. Since it is apparently the first of its kind in this country, I will describe the administrative

routine in some detail (with permission of the dean), in the hope that it may assist others contemplating a similar service.

All but 4 of 300 eligible and accessible students have entered the scheme, which is essentially voluntary. The information is treated as confidential, and any student found to have doubtful or definite progressive lesions is referred to the doctor of his choice for further opinion or advice. While he is not required to take the advice given, it is not anticipated that the problem of a serious or sputum-positive case refusing treatment is likely to arise. The service is free, but no provision is made for the cost of treatment.

An explanatory leaflet is issued to each student before his first examination. The latter consists of screening and film of the chest, and the student answers a questionnaire concerning his family and past and present medical history as regards repiratory disease. Discussion between radiologist and physician is followed, a few days later, by an interview between the physician and the student, at which the weight is recorded, the history completed, and physical or sputum examination made if the history or radiogram indicates it. At this interview the result of the whole examination is given to the student, any special action to be taken is decided upon, and the date for the next routine examination fixed.

The standard interval between routine examinations is at present one year, but this interval is shortened either at the will of the doctors, if the history or radiogram of the previous examination suggests the advisability of closer observation, or at the will of the student, if suspicious symptoms develop. The student is particularly asked to seek advice during the period between routine examinations should he become worried about his chest; and it is hoped that the items on the questionnaire, together with his medical training, will enable him to recognise symptoms requiring an intermediate re-examination, and that the established routine and convenient situation of the medical service will encourage him to take the initiative to obtain it.

Re-examinations are similar to the first examination, though screening is usually omitted. The chest film is taken under conditions so far as possible comparable with those used on the first occasion. At the clinical interview the weight record and medical history are brought up to date.

Already this scheme has revealed several persons with undoubtedly progressive, though comparatively slight and favourable, lesions requiring treatment. These lesions were discovered at routine examination, were unaccompanied by definitely significant symptoms, and would not have been detected until later without such a scheme. The number of such cases, however, was considered no more than would be expected in a medical student population.

It is hoped that within a few years the University College Hospital and any similar schemes will have demonstrated the practical possibilities and value of this type of health service for young adults, and may justify their introduction on a large scale. By that time some of the results of the Prophit scheme of the Royal College of Physicians, concerning the evolution of the types of pulmonary lesion likely to be met and their relationship to Mantoux sensitivity, should be available. Besides serving as one possible model, the present scheme should throw light on the significance of the common respiratory symptoms in a student population.

OBJECTIONS AND DIFFICULTIES

Since the adaptation of the tuberculosis services so as to allow of periodic examination is envisaged as a possibility of the near future, both in the United States (Kiernan 1936) and in England (Trail 1936, Wingfield and MacPherson 1936), it is worth considering some of the objections likely to be raised, and difficulties likely to be encountered.

The first is *unnecessary radiological examinations.* To avoid these, in a group of adults where there is a relatively low incidence of tuberculous infection negative Mantoux tests may be used to reduce the number of persons undergoing radiography as a part of their periodic examination. (Among medical students and hospital nurses, judged by continental and American figures and by one set of English data—Edwards 1936—the incidence of negative reactors at the commencement of *clinical* training may be up to 20 per cent. or more.) In persons giving a negative response the test must of course be repeated at intervals so long as it remains negative.

Apart from the small economy obtained by Mantoux tests in such groups, it is usual for every individual to be radiographed at each routine examination, even in the absence of symptoms, since serial radiograms form the basis of the method. The presence or absence of symptoms is carefully noted, but, in the University College Hospital scheme at any rate, physical examination is only made if symptoms or radiography suggests its advisability. This relegation of physical examination of the chest to an inferior position as a method of case-finding in tuberculosis may be objected to by some. It is, however, justified by results of clinical and radiological mass-studies (see Reid 1934, Wingfield and MacPherson 1936, Trail 1936), while the impracticability, in the present state of knowledge, of sorting out adolescents for radiological examination by means of differences in general physical condition has also been pointed out (McKinlay and Watt 1934).

Anxiety state among examinees.—An objection usually raised to the principle in schemes of the type contemplated is that more harm will be done by producing nosophobia than good by detecting early disease (see, for example, Hutchison 1934). At present this danger does not appear to have affected any established scheme to any serious extent, the routine being accepted as of little mental consequence once the novelty has worn off. Since, however, every young adult population will contain many persons liable to develop anxiety about various diseases, every effort should be made to implant health-consciousness rather than disease-consciousness. The eventual inclusion of periodic examination for early tuberculosis as part of larger schemes of health inspection should help towards this end. But the best argument against allowing the danger of creating tuberculophobia to hold up establishment of such schemes is that young adults, more often than not, already have an outstanding dread of tuberculosis—a dread founded on a sound knowledge of public health statistics. And the best weapon for removing this dread is to provide them with experience that the majority of their fellow-workers who are found to have lesions return to their jobs after treatment. In any case the only alternative to schemes of this type—namely, to emphasise early but vague symptoms—seems itself just as likely to produce nosophobia and with less return for the effort expended.

Stigma attached to tuberculosis.—Somewhat allied to the fear at present attached to tuberculosis is the associated social stigma.

This difficulty has to be faced in persuading members of schemes to undergo treatment when they do not feel particularly ill. If, however, the hopes placed in this method are fulfilled, the gradual preponderance of mild sputum-negative cases undergoing relatively short periods of treatment should alter the popular, and at present

substantially correct, picture of phthisis with its usual consequences.

Moreover, the treatment of these slight cases may come to be simplified. Thus home supervision, with some degree of restricted life but without loss of work, has been used for some types. "Ambulant" chrysotherapy has been suggested for certain early cases by Sayé (1934), while Diehl and Myers (1936) mention 16 students who have recently commenced pneumothorax treatment without loss of work. When sanatorium treatment is used, it may eventually be found practicable to arrange that sputum-positive and asymptomatic cases are not sent to the same institution.

In association with these developments public instruction pointing out the importance of treatment of slight asymptomatic cases in preventing tuberculosis as it is usually known would be of value, while the sanatorium for such patients might appropriately be termed a preventorium. It is of interest that the present Sheffield tuberculosis service appears to be concentrating upon the hospitalisation and after-care of the preclinical and minimal sputum-negative case, regarding a sputum-positive case as a comparatively late one, and claims by these measures to be reducing the stigma usually attached to the disease.

Classification.—It may become advisable to classify the asymptomatic or preclinical case separately, as suggested by Opie (1935). In England this would necessitate subdivision of the *T.B. minus* class of Ministry of Health form 17/T (revised), the subgroups possibly to include such headings as slight or minimal, and asymptomatic-progressive or preclinical. On the other hand, official recognition of insignificant or healing lesions not requiring treatment would be of little value. It should be emphasised that the gradual introduction of schemes of periodic examination in the country at large would have a marked effect upon the statistics of new cases, causing a gradual unnatural increase.

Difficulties in X ray interpretation.—With a standard interval of a year one must expect to meet some cases that show extensive lesions and yet have had a negative previous examination (see Reid 1934), if only because some individuals will delay to report symptoms occurring during an intermediate period. Nevertheless, in a certain number of such cases the previous radiogram, on reinspection, may be found to show small shadows that had been regarded as insignificant, or had been missed altogether. A good quality of film, so far as possible comparable conditions, and a high degree of competence in interpretation are therefore essential; while even the smallest visible shadows could advantageously be recorded—for information only—at least until experience has been gained in the method.

When a particular shadow, ascribable to early tuberculosis, has been detected, difficulty may still arise as to its prognostic significance and as to any action required. It may be argued that many of the slight progressive lesions would have healed by themselves if left undiscovered; that others would do as well—even though by that time more extensive—if detected later on in the ordinary way; and that others will still progress unfavourably no matter what is done.

It may be stated, in reply, that the rationale of this method of diagnosis depends, so far as the individual patient is concerned, upon the hypothesis that, *on the average*, a slight and early case does better with than without treatment, and that with treatment it does better than does a later and more extensive case. The difficulty in interpreting a particular lesion, and of deciding any action required, can often be resolved after keeping the person under close observation. Intensive research, such as the Prophit scheme, should add greatly to knowledge of the prognostic significance of these various early X ray lesions, but the results will not be available for some years, and delay in proceeding with trial routine schemes of periodic medical examination until then appears to be unjustifiable. In any case, even if they were assumed to be useless to the individual patient, such routine schemes would benefit the community by earlier removal of otherwise undetected sources of infection. Nevertheless, until further experience in interpretation has accumulated, we must face the occasional risk of unnecessary treatment as an alternative to postponing interference until too late. At the same time, this element of uncertainty makes it all the more necessary to see that treatment does not mean avoidable economic suffering.

Economic security of the examinee.—If schemes of periodic examination are to be introduced on a large scale into industry, economic factors are likely to play a decisive part. I have already spoken of the temptation for a man to resume his occupation too soon and of the tendency to remain too long at work without seeking medical advice. But the financial difficulty is far greater when a man is advised to discontinue work and to undergo treatment at a time when he does not feel particularly ill. The assurance of economic security to the examinee would make this advice more acceptable, and would make him more likely to report suspicious symptoms arising in the interval between routine examinations—an integral part of the scheme.

Since the safety of the group of workers, as well as of the individual sufferer, must be considered, and at the same time the information obtained must be treated as confidential, the acceptability and success of a scheme would be best assured by providing economic security in some such way as the following. At the beginning information explaining its purpose might be circulated, with the assurance that under no circumstances will any worker suffer dismissal as a result of any discovery made under the scheme, and that where treatment is considered necessary he shall have the right to another opinion of his choice and shall receive, say, full wages (up to a maximum) for a limited period. The period might be chosen to cover the ordinary course of treatment and convalescence found after trial to be effective in favourable cases. The payments might be derived from a special sickness insurance fund.

Expenditure on schemes.—The economic aspects of these schemes affect not only the individual but also the community, which ultimately bears the cost. Hence some estimate of expenditure must be attempted.

Probably the cheapest and most rapid radiographic method is that of the Powers X-ray Tuberculosis Travelling Survey Service, a triumph of American mass-production, which takes paper films at the rate of 150 an hour at an over-all charge of about three shillings a head (Barnard 1934). The interpretation and clinical part of the examination are, of course, not included in these figures. Presumably celluloid films, which are preferable, could be cheapened to satisfy a mass demand, but an apparatus for taking at high speed might be difficult to devise. The University College Hospital scheme absorbs 1 man-hour per student per examination from the whole (medical, technical, and clerical) personnel and ½ to ¾ hour from each student; but these times would undoubtedly be reduced as procedure became standardised.

In considering the return to be obtained for the expenditure in time and money, the number of cases likely to be found, and the possible gain in the saving of life and man-power, must be borne in mind. According to recent reports, the incidence of clinical tuberculosis likely to be found in a survey of a young adult population in a large city of England or the United States is about 0·5 to 1 per

cent., while another 0·5 to 1 per cent. may be found to have asymptomatic significant lesions, potentially or actually progressive; the figures being considerably higher where groups of contacts or persons in unusually poor environment are being examined (Barnard 1934, Downes 1934, Reid 1934, Fellows 1934, Opie 1935, Wingfield and MacPherson 1936). These figures must be taken as rough indications and the incidence of lesions would be expected to be somewhat smaller in subsequent examinations than in a first survey. Thus the incidence of (mainly young adult) applicants for employment at the Metropolitan Life Insurance Co. from 1927 to 1932 with significant active lesions requiring treatment was 0·4 per cent., while the annual incidence of new such cases among the actual employee population from 1930 to 1935 was about 0·2 per cent.

The average annual expenditure per head of the community on tuberculosis services is more than 2*s.* at the present time, and the immediate increase in expenditure under this head due to schemes of periodic examinations, were the whole population included, would probably be at least double this amount annually for diagnosis alone. The expenditure on treatment, per head of the community, would also increase at first, since more cases of tuberculosis would be diagnosed and sent for treatment. But against this increase must be set the fact that much of the present expenditure goes to prolonged and unprofitable treatment and to the after-care of chronic cases with little prospect of resuming any useful occupation. If the proportion of cases diagnosed in a slight and favourable stage increases, the expenditure per case should decline, and this decline, together with the hoped-for reduction in new cases as the result of eradication of infective sources, will tend to offset the immediate increase in expenditure on treatment per head of the community.

The value to the community of the lives and health that might be saved by schemes of the type described, even if only assessed in terms of fecundity or of the monetary value of their potential work is, however, the most important consideration in estimating whether the increased expenditure entailed is justified. For the younger adult age-groups this value is enhanced by the notorious rapidly changing age-composition of the population towards a preponderance of older persons, and by the recent decline in the birth-rate. (For calculation, on an actuarial basis, of the prospective money value of a man as a wage-earner at different ages, and according to the amount of his earnings, see Dublin and Lotka 1930.)

PERIODIC MEDICAL EXAMINATION ON A LARGE SCALE

I have purposely emphasised the possible objections and difficulties. But since it is to be hoped that the method will in spite of them find increasing favour in this country, it is well to conclude by indicating how such schemes might be introduced in the community at large.

It seems desirable, at first, to limit them to young adults, aged 15–24, and to select groups that are easily accessible—more particularly those with a greater than average chance of developing progressive lesions. These categories will include university students and nurses, and persons attending diabetic and antenatal clinics. The next step might be to introduce schemes for young adults in State-controlled employment, such as the civil service or Navy, after which schemes might be developed among industrial groups, presumably under the control of the industrial medical or public health service.

At some point in their development these schemes would come into conflict with the *diagnostic* side, both of the consultant and of the contacts service of the present tuberculosis dispensary system. It would be difficult, even if it were desirable, to avoid taking over the function of the former, but the future of the contact examination service is a more complex matter, though obviously of great importance since the yield of cases is higher than in any other set of persons. The points in which the present contact examination service differs from a fully developed scheme of periodic examination have already been described. There appear to be two alternatives for the future.

The first is that the present contacts service be expanded and modified so as to work, so far as possible, on the model of the other, fully developed, schemes. The main object of expansion would be to render practicable the examination of a greater number of new adult contacts and to make their follow-up more complete. This expansion, even if limited to young adults, would have to be very considerable, from the estimates given previously. A compromise might, however, be reached whereby adult contacts of all ages are radiographed once (to discover the primary infective source and any other cases), while further observation by periodic examination and serial radiography is limited to young adults in those families where the original case, or any other discovered at first examination, is sputum-positive. The main point in favour of retaining a contacts service in some form or other is the advantage of having one doctor in charge of a tuberculous person and his entire family, for purposes of observation and social care.

The second alternative is to permit the functions of the present contact examination service to be taken over by the fully developed schemes of periodic examination (which of course include non-contacts as well as home-contacts). Certainly the dual purpose of the latter—to help prevent disabling pulmonary tuberculosis and to help prevent spread of infection to others—seems to cover the diagnostic functions of any special contacts service. And it is possible that selection of a group of young adults on an industrial or study basis rather than on a family basis might do more to achieve this dual purpose, because of the greater accessibility of the examinees; while the determination of an individual's first examination under a scheme by his age, rather than by the discovery of a clinical case of tuberculosis in his proximity, might also be an advantage. The industrial or other fully developed schemes would allow the close observation of persons who have had pleurisy, the full importance of which as a precursor of progressive pulmonary lesions is becoming increasingly realised (see Trail 1937). Finally, the industrial or other schemes could form part of a comprehensive health service that would include the detection of pulmonary tuberculosis as merely one of its important functions.

Conclusions Regarding Early Diagnosis

Earlier diagnosis and treatment of progressive pulmonary tuberculosis among adults should benefit the community by helping to prevent the more serious forms of the disease, to restore more persons to health and work, and to eradicate sources of infection. For achieving early diagnosis in the past we have tended to concentrate upon the early clinical case—i.e., the patient who already has symptoms or physical signs. In the future we must concentrate upon the preclinical case. In the past we have for the most part attempted to recognise the presence of progressive lesions, soon after symptoms have developed, by a single examination at the request of the individual when he feels ill. In the future we must try as far as possible to discover these lesions before the onset of definite symptoms by the routine periodic examination of selected groups of individuals, particularly young adults, supposedly in health. Serial radiograms and (especially where a low tuberculous

infection incidence prevails) Mantoux tests would be the basis of such examinations.

* * *

With its sensitivity to social conditions, its chronic course, its infectiousness, and its possible detection before signs and symptoms develop, and with the benefits attainable from early treatment, pulmonary tuberculosis has offered and still offers remarkable opportunities for the practice of preventive medicine. And the four measures particularly emphasised in these lectures—social measures applicable to the community at large, social measures applicable to the individual sufferer and his family, protection of members of the community from infectious disease, and the detection of the first signs of deviation from health—reflect the varied aspects of preventive medical practice in general. Furthermore, the changes envisaged in applying these four measures to the particular disease tuberculosis coincide with a general movement of the profession towards regarding maintenance of health as its primary goal, and towards a greater interest in those social conditions often forming the background of illness. The measures used in the fight against tuberculosis can form the spearhead of this movement.

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LANCASHIRE MENTAL HOSPITALS.—The Minister of Health has sanctioned the borrowing of £488,666 by the Lancashire Mental Hospitals Board for works in connexion with the extension of the Brockhall Certified Institution for mental defectives to provide accommodation for 1326 additional patients. This will bring the total accommodation of the institution up to 2098. The additional accommodation to be provided includes a hospital, school, work-rooms, recreation hall, staff cottages, and administrative buildings.

SEAMEN'S HOSPITAL SOCIETY.—The Earl of Athlone, presiding at the annual meeting of the court of governors of this society on April 21st, said that at the new Albert Dock Hospital a model fracture clinic is being built through Lord Nuffield's generosity, where after discharge from the wards, patients will be retained under observation and treatment in the rehabilitation centre. There will also be a dining-room where men who only receive a maximum of 30*s*. a week as compensation pay will receive proper nourishment. Only £9500 is now required to complete the appeal made by the Albert Dock Hospital rebuilding fund for £50,000.

INSULIN SHOCK TREATMENT OF SCHIZOPHRENIA

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Growing interest is being shown in the insulin shock treatment of schizophrenia introduced by M. Sakel in 1933 at the Pötzl Clinic, Vienna. By the courtesy of Prof. O. Pötzl we were enabled to study the method in Vienna, and formed the opinion that it may prove to be an important therapeutic contribution to the attack on a disease which has hitherto defeated most curative efforts by its chronic and progressive course. As a result we have used the insulin shock therapy at Moorcroft House, Hillingdon, since the beginning of the present year. To discuss results would be premature in view of our brief experience; it may be said in general that they are encouraging.

References in British journals to this form of treatment are at present limited. Apart from the well-known study by I. G. H. Wilson (1936) there has been a brief note by D. K. Henderson (1936) in the report of the Edinburgh Royal Hospital on the cases treated there by P. Strecker, and recent articles by L. W. Russell (1937) and E. H. Larkin (1937). The latter are of special interest in that they report the use of the treatment in two English hospitals and set out the results obtained in a small series of cases.

Some definition of terms commonly confused may be useful at the outset. It is essential to distinguish between "shock" and "coma," sometimes used synonymously. The term "shock" should be confined to the period of time between the initial symptoms of hypoglycæmia and their interruption by the administration of glucose. The term "coma," on the other hand, should be limited to the stage of hypoglycæmia during which consciousness is lost, the patient being insensible to stimuli such as shouting his name or touching his body. We speak of "deep coma" when hypotonus appears, the corneal and plantar reflexes being absent. "Deep coma" should never be permitted to last longer than 1½ hours.

We attach great importance to certain details in which our technique differs from that outlined by Russell and by Larkin. For example, Russell states that he leaves the patient in coma for 2–2½ hours daily, but fails to say by what standards the depth of coma is measured. If the patient is left more than 1½ hours in "deep coma" there is serious risk that restoration may be difficult. Larkin avoids the occurrence of epileptiform fits by premedication with Prominal. Our experience confirms the generally accepted view that fits are useful therapeutic accidents. In selected catatonic cases we have therefore induced occasional epileptiform seizures by the intravenous use of Cardiazol, insulin being omitted on these days, thus combining the methods of L. Meduna (1937) and Sakel. These cardiazol seizures lasting a few seconds require no remedial interference, but fits occurring during hypoglycæmia must be interrupted forthwith on account of the danger that status epilepticus may develop.

More importance should be attached to constant medical attendance on patients in hypoglycæmia. Alarming emergencies may arise, sudden in onset and serious in their results. Hypoglycæmic coma may be compared with anæsthesia, and the anæsthetist never leaves his patient. A doctor should remain in the insulin department from the time of the injection until the last patient is awake. When six or more patients are undergoing treatment a second doctor should be quickly available during the critical period of hypoglycæmia (in our case 10 A.M. to noon) as it has happened that we had to deal with two or more emergencies simultaneously. Care must be exercised to ensure that the nursing staff can obtain a doctor at short notice for the rest of the day and following night.

If wide departures are made from the established principles of the treatment as evolved by its originator, serious risk to life will ensue, and the method may thereby be brought into disrepute. These considerations must serve as our excuse for recapitulating in detail the technique used in Vienna, Munsingen, and Otwock, carefully summarised by E. P. Frostig in a lecture given to the Arbeitsgemeinschaft für Psychiatrie und Pathophysiologie, Vienna, in 1936, and as far as we know unpublished. We include a description of the major manifestations to be expected during the shock period and their management with the object of obtaining maximum therapeutic results with a minimum of risk.

THE SELECTION OF MATERIAL

The criteria of the diagnosis of schizophrenia is one of the first difficulties. The standards are subject to slight variations in different countries and even in different schools in the same country. All workers should follow a definite plan for arriving at the diagnosis and report the data on which that diagnosis rests. Further, the different classes into which workers divide schizophrenia should be clearly defined and described, as it would seem that insulin therapy produces different results in the separate clinical types of the disease. Our own diagnostic requirements roughly follow the classical description of dementia præcox and paraphrenia by Kraepelin, and therefore include patients that some writers would distinguish from schizophrenia. In recording histories it is of the utmost importance to differentiate between the more chronic and progressive cases and those with acute onset and a tendency to show remissions; this differentiation will be found essential when a final assessment of the worth of the method comes to be made. We would stress the importance of classifying the cases according to the duration of schizophrenic symptoms; they are usually grouped under headings which distinguish the length of the illness as up to six months, up to one year, up to eighteen months, and over eighteen months.

PHYSICAL EXAMINATION OF THE PATIENT

A detailed and orderly physical examination is essential. This is especially necessary if advanced cases are to be treated. Contra-indications to insulin therapy are not yet clearly defined, and further accurate information on this subject is needed.

The rule at Moorcroft House is that when routine examination reveals any suspicion of organic disease, especially cardiovascular or hepatic disease, the treatment is postponed or abandoned. We have learned to pay particular attention to the lean asthenic type of individual with cold extremities

and low blood pressure. Our experience teaches that such types are highly sensitive to insulin, often produce severe hypoglycæmic manifestations, and prove difficult to arouse from coma after the administration of glucose. Such difficulties appear to us less common in the athletic and pyknic physical types. In asthenic types insulin may more often produce toxic hypoglycæmic reactions and after effects, which include vomiting, diarrhœa, tachycardia, and pyrexia. When such manifestations occur, treatment (after a short rest) is carried on with much reduced doses. The patient may then acquire a higher level of resistance, described by E. Küppers (1937) as "adaptation." In the experience of one of us (Freudenberg 1936), this adaptation is assisted by giving intramuscular injections of vitamin B, together with an extract of suprarenal cortex every evening until adaptation is established. In a few patients very resistant to insulin premedication with alkalis—e.g., sod. bicarb.—orally or intravenously has been found to increase sensitivity (R. F.).

BRAND OF INSULIN

All the experience gained of insulin shock therapy has been obtained by the use of pancreatic extracts. These extracts are standardised experimentally by their effects on the blood-sugar of rabbits. The mechanism of the effects of high doses of insulin continued over a long period, as in insulin shock therapy, has not yet received sufficient experimental investigation, these effects having been studied chiefly by clinical observations recently summarised by K. Th. Dussik and R. Freudenberg in a lecture given to the Arbeitsgemeinschaft für Psychiatrie und Pathophysiologie, printed by Ars medici Verlag, Vienna, 1937.

There seem to be small differences in the effects produced by different trade preparations of insulin. For this reason the commercial preparations used should always be mentioned in records of cases. We have used the Wellcome brand of pure crystalline insulin. Our experience confirms the view of Müller (1936) who lays stress on the apparent increase in sensitivity to insulin which occurs in many patients during treatment. We believe this change in sensitivity to be of the utmost importance, and it is our rule to attempt to diminish the amount of insulin once the coma dose has been reached. Other patients develop increased resistance to insulin in the course of treatment. It is of interest that increased sensitivity may change to a high resistance to insulin in the same patient. These facts have not yet been satisfactorily explained. During our fifteen weeks' experience crystalline insulin has not produced an urticarial rash in any of our cases. The "Wellcome" brand has the great advantage of being prepared in three strengths, 80, 40, and 20 units per c.cm., thus saving patients on large doses much discomfort.

PHASES OF THE TREATMENT

Phase I.—The usual practice is to begin the treatment with a subcutaneous injection of 20 units of insulin (or less in the case of debilitated patients) given at 7 A.M., the patient fasting from 7.30 P.M. the night before. This dose is increased daily by 5 to 10 units until the initial coma dose (15–300 units) has been reached. In two of our cases 30 units produced severe epileptiform convulsions less than one hour after injection; in one of these coma is now obtained with 15 units. This patient was of the asthenic type. The duration of phase I depends on the sensitivity of the patient, the amount by which the dose is increased, and probably also on factors which are at present unknown. The physical and mental signs and symptoms in phase I are here briefly described as far as possible in the order in which they appear. No hard and fast rule can be laid down either as to the time or order in which they arise. Indeed, some patients seem to present very few signs and symptoms in phase I, and the manifestations may vary from day to day in the same patient.

During the first hour signs and symptoms are mostly absent. Flushing of the face is usually the first noticeable change, and may be followed by a mild euphoria, accompanied by giggling and often a feeling of well-being and strength. Commonly associated with the euphoria is a period of lucidity and insight which will be referred to below. The patient often complains of hunger. Sweating may occur with the flushing, but is more marked later when the flush has given way to pallor. Somnolence follows, often after a short spell of restless tossing in the bed. The euphoric period may develop into almost any type of excitement from singing, whistling, and obscene remarks, to a wild psycho-motor restlessness, with constant incoördinated movements, from which injury may result unless padding of the bedstead is adequate. There is usually a preliminary rise in the pulse-rate, and slowing in the later stages. Myoclonic twitchings may appear in the third or fourth hour, when the patient is gradually losing consciousness, and may develop into an epileptiform attack.

Interruption in this phase is carried out by making the patient drink sugared tea (7 oz. of sugar in 500 c.cm.).

Phase II.—This is the phase which is ushered in by the establishment of the initial coma, afterwards repeated daily during this phase of the treatment. In coma the patient is unconscious and incapable of being roused; as it progresses salivation becomes profuse, and extensor plantar responses, often bilateral and spontaneous, appear. Next hypertonus, usually in flexion, is seen but this should disappear and give place to hypotonus.

From the clinical point of view the coma now enters on a stage requiring careful observation. With hypotonus and flaccidity of the muscular system generally, the reflexes disappear. There is no response to the plantar reflex, the corneal reflex is absent, the deep and superficial reflexes cannot be obtained. Eventually, if the coma is allowed to proceed, hypertonus may reappear. The upper limbs are rigidly extended in pronation, the lower limbs become rigid in extension, opisthotonos may occur and the patient resembles the decerebrate animal. With the early hypertonus and myoclonic twitchings the pupils tend to be dilated. When hypotonus and flaccidity occur and the corneal and other reflexes fail, the pupils are contracted. Finally, in the stage at which hypertonus reappears, the pupils again dilate and may fail to react to light. In this condition, referred to above as resembling the decerebrate animal, interruption becomes an immediate necessity.

Dosage should be arranged so that coma does not begin until the third hour following the insulin injection. If coma commences prematurely it is a sign that the dose is too big.

A word of caution as to the management of all cases during the hypoglycæmic period may be added here. Patients should be left as quiet as possible. Movements or struggling will produce compensatory secretion of adrenaline, resulting in a lessening of the depth of coma.

Phase III.—This term was used by Sakel to denote periods of rest. It is still used in this sense and now means the weekly day of freedom (Sundays), and the compulsory rests after the patient has suffered from "emergencies" (see below), or after effects of treatment. A day or more of rest should also follow diarrhœa and pyrexia.

Phase IV.—This phase (withdrawal of the therapy) begins when no further clinical improvement can be obtained, and in any case after about three months of treatment. The dose of insulin is reduced to roughly one-third or less of the coma dose and interruption is carried out about 2 hours after the injection. This process occupies from 4 to 8 days.

INTERRUPTION

In phase II interruption is normally carried out by the nasal tube. We believe the tube should be passed only when the patient is in coma. Gastric secretion, usually increased in quantity, is withdrawn and tested by litmus paper so that there can be no question that the tube has arrived at its proper destination. A precautionary passing of the tube at an early stage of coma is justified when signs such as severe myoclonic twitchings suggest that a state of emergency is imminent. If such precautionary insertion of the tube has been carried out and a period of time has elapsed before actual interruption the gastric juice is again tested. A funnel and tube with a glass connexion enables dilute sugared tea (7 oz. in 500 c.cm.) to be run into the stomach. When a patient is known to have a tendency to vomit, 2 minims of 1 : 1000 solution of atropine sulphate are introduced through the tube before the feed. During the whole of this operation the tube is held in position by doctor or nurse. For patients refusing meals this opportunity is used to administer a good feed containing the same amount of sugar, with milk, cream, and three eggs. After the introduction of the feed the nasal tube is removed immediately. Our experience supports the view that patients are adversely affected by waking to find the nasal tube in position, and we consider that to leave the tube in situ until the patient awakes as advised by Larkin is undesirable. Waking should take place within 20 to 30 minutes and the patient is then given cake or biscuits and milk to drink. During coma the body temperature falls to a very low level, often under 95° F. After interruption patients appear cold, with shivering and "goose flesh," and it is our practice to have hot-water bottles ready to apply in every case.

The daily length of the coma must be extended gradually and never continued beyond a period (discovered by trial) that allows the patient to awake easily and without after effects. There is an "optimum" duration of coma for each patient which is often less than 1½ hours.

After interruption patients rest in bed for about half an hour, care being taken to change the clothing which is generally soaked in perspiration. Patients take an ordinary lunch and someone must see that sufficient food is taken at all subsequent meals, or late hypoglycæmic symptoms may occur. It is our practice to record the food consumed during the day, a task entrusted to one of the nurses.

AFTER EFFECTS

Reference must be made to after effects, rare if proper precautions are observed. Among them is vomiting, with loss of the glucose feed and resulting repetition of any of the hypoglycæmia signs, including coma and fits. Intravenous glucose may be required when this happens but if the patient is sufficiently awake and the manifestations of hypoglycæmia are slight, carbohydrate food may be given by the mouth. A less frequent after effect is the progressive deepening of the coma subsequent to the administration of glucose. When this phenomenon is observed intravenous interruption is required.

General Indications for Interruption

Hypoglycæmia must always be interrupted :—

1. By the end of the fifth hour from the time of the injection—e.g., by noon if beginning at 7 A.M.
2. Whenever gross disturbances or variations of the pulse occur—e.g., irregularities, or rates of over 120 or less than 40.
3. If hyperextension of the limbs with pronation of the upper limbs is persistent.
4. In the presence of stridor with cyanosis and movement of the accessory muscles of respiration.
5. When hunger excitement occurs (Sakel 1935). This is to be distinguished from the customary requests for food, and consists of wild excitement and a fierce shouted insistence on an immediate meal.

Interruption should take place at whatever stage of the hypoglycæmia these general indications appear. Sometimes the patient is able to drink his sugared tea, but usually the nasal tube is required.

INDICATIONS FOR INTRAVENOUS INTERRUPTION : "EMERGENCIES"

The following "emergencies" are indications for intravenous interruption :—

1. Respiratory embarrassments which include the sudden cessation of respiration and laryngeal spasm.
2. The premature incidence of coma. Premature coma tends to deepen with alarming rapidity. This phenomenon results from an unwise increase in the initial coma dose, or in a specially sensitive patient.
3. Obvious cyanosis of the mucous membranes with a weak and rapid pulse.
4. Epileptiform fits. These attacks may occur at any time in the hypoglycæmic period or after interruption. Fits after interruption usually develop within 40 to 50 minutes. They may occur rarely at a much later period should hypoglycæmia for any reason return. In addition to the intravenous glucose the nasal tube should be passed and a feed inserted into the stomach, thus providing a carbohydrate depôt on which the patient can draw. In the epileptiform attack, the usual precautions against tongue biting are taken.
5. Cardiovascular collapse. In this sudden emergency subcutaneous injection of adrenaline (1 c.cm. of 1 : 1000 solution) is the best initial step. Intravenous therapy may be rendered impossible by the collapsed condition of the veins, in which case the physician should proceed to give an intraventricular injection of 2 to 4 c.cm. of 33 per cent. glucose solution. If adrenaline has not already been given subcutaneously or intramuscularly, it may be added to the intraventricular injection.
6. Vomiting.
7. A state of wild psycho-motor excitement, with flushed face, and dilated pupils. This condition is sometimes seen after interruption by nasal tube, and in such cases intravenous glucose must be given. If the excitement continues lumbar puncture will sometimes be necessary. Paraldehyde or amylene hydrate by the rectum are useful.

CERTAIN POINTS IN TECHNIQUE

Lumbar puncture is advisable when the patient fails to awake after intravenous interruption. In this condition bleeding is also advisable, and up to 300 c.cm. of blood should be withdrawn.

A 33 per cent. sterile solution of glucose is always used for intravenous interruption, the injection of from 60 to 120 c.cm. being sufficient to awake most cases. We use 20 c.cm. syringes, which are easily refilled while the needle remains in position.

There is one restorative measure which we have found very useful in certain emergencies. A cylinder of mixed oxygen and CO_2 (5 per cent.) is kept ready on a wheeled stand. Administration of this mixture is especially useful in cases of cyanosis, and in patients who fail to awake after intravenous interruption. In our experience it has also relieved laryngeal spasm.

We have applied the suggestion of Sakel (1936) that paranoid cases be treated with deep coma. He advocates that in treating catatonic stupor interruption should be effected while the patient is in a euphoric or excited condition. This often puts an end to the stupor, exposing a loose system of paranoid ideas. Subsequent treatment should then be directed towards obtaining deep coma. On the other hand, catatonic excitement should be interrupted during the period of quiet somnolence before the onset of coma, carefully avoiding interruption during excitement. When the patient has become sufficiently quiet the treatment is continued with daily coma.

We never use adrenaline to secure interruption, its use for this purpose having been abandoned in Vienna. We reserve it for cardiovascular collapse and laryngeal spasm.

PSYCHOLOGICAL SYMPTOMS AND THERAPEUTIC MEASURES

We have already stated that before coma appears euphoria is common, with some degree of lucidity and insight. This is an opportunity for the physician to re-establish contact with inaccessible patients. A word of warning is here necessary. Throughout the treatment until comatose, patients are extremely sensitive and exhibit a pronounced hyperacusis. Caution must be exercised as to what is said in the neighbourhood of the patient, even in a whisper. An unwise chance remark may act as a serious psychic trauma. It is best to leave the patient alone while he is waking from coma and, in the early days of the treatment, to avoid any discussion with him concerning his illness. Such discussion has in our experience resulted in relapse in an otherwise improved patient. For this reason the visits of relatives are a potential source of danger.

The phenomenon of "reactivated psychosis" is described by Sakel (1935) as a reproduction of psychotic symptoms during the hypoglycæmic period, the patient being normal during the rest of the day. This phenomenon has frequently been observed by us, and seems to be explained as a combination of the "insulin psychosis" observed in mentally normal diabetics, and the actual schizophrenic condition for which the patient is being treated. Sakel advises that phase II should be continued until the "reactivated psychosis" disappears. There does not seem to be general agreement on this point, and our experience is still too limited to enable us to form an opinion. All agree that the daily hypoglycæmia should never be interrupted during "reactivation."

The care of the patient after interruption is important. So far as is feasible we try to ensure that some definite occupation is provided for the afternoon and evening. Patients leaving the grounds should be accompanied by a nurse or responsible relative, and chocolate should be carried as a convenient form of sugar in case of any return of hypoglycæmic symptoms. This has actually occurred to one of our patients during a walk. Night nurses must be familiar with the signs indicating hypoglycæmia, and must be instructed to pay frequent visits during the night to patients undergoing treatment.

CLASSIFICATION OF RESULTS

We are often asked as to the mortality to be expected among patients treated with insulin shock therapy. The most recent figure from a series of 400 cases (Küppers 1937) is 1·5 per cent. It must not be forgotten that the 400 cases collected by Küppers contain those treated in the early days when mortality was higher from inexperience and faulty technique. We believe that the death-rate will always prove to be in inverse relationship to the care with which a proved method of technique is adopted and applied.

We would strongly recommend the adoption of some standard method recording results. We suggest the four categories established by Müller (1936).

1. *Complete remission.*—This category represents complete disappearance of schizophrenic symptoms, with normal affective relationship, full insight, and ability to return to the normal sphere of work.
2. *Incomplete remission.*—This category includes patients who are able to work but with persistence of any one of the psychic symptoms described under 1.
3. *Partial remission.*—Patients in this category are able to resume work; symptoms remain without interfering with their daily life.
4. *Unimproved,* and requiring hospital care.

CONCLUSION

It seems likely that this method will be given an extensive trial in this country, and it is clearly of the utmost importance that fresh workers, or those already engaged on this work, should make a serious attempt to coördinate and standardise not only the technical side of a difficult and laborious procedure but also the criteria of diagnosis by which cases are selected, and the classification of results. It is hardly necessary to enlarge on the advantages gained from such standardisation. First, the undoubted dangers of the procedure will be minimised by the adoption of the proved technique. This is not meant to imply that no modifications are possible; they are bound to be tried. But in applying a method of treatment that is not without danger to life, it seems to us wise to follow closely a technical procedure already fully tested in Vienna, Munsingen, and elsewhere. Secondly, if it is possible to arrive at agreement on the criteria of diagnosis, the cases selected for treatment will command a general acceptance as properly belonging to the schizophrenic group of mental disorders. Thirdly, agreement on classification of results will enable a quicker judgment to be made of the real value of the new method.

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TREATMENT OF URINARY INFECTIONS WITH CALCIUM MANDELATE

BY EDGAR SCHNOHR, M.D.

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MANDELIC acid has been widely used in the treatment of urinary infections since Rosenheim introduced it in 1935, and the results published have all been excellent.

I have treated 30 patients with sodium mandelate and ammonium chloride as originally advised by Rosenheim, and found that in 23 the urine was sterile after 4–30 days, although several were severely ill, some with stones and urinary stasis. The only disadvantage of the treatment is that mandelic acid

has a very disagreeable taste and not infrequently causes nausea and vomiting. For some patients the dyspeptic discomfort was enhanced by the ammonium chloride, and occasionally the treatment had to be given up. This led me to try the calcium salt of mandelic acid which, unlike the sodium and ammonium salts, is quite tasteless. The preparation used * has the following constituents:—

Calcium mandelate	72·25
Cocoa powder	7·50
Saccharum purificatum ..	20·00
Saccharinum solubile	0·02

It is in granular form and one level dessertspoonful contains 2 grammes of mandelic acid. In the stomach calcium mandelate is broken down to mandelic acid and calcium chloride, most of which is converted into non-absorbable calcium salts in the intestines. This gives a surplus of mandelic acid. Since a part of the administered calcium is absorbed, together with the mandelic acid, the calcium mandelate will have a less pronounced acidifying effect than ammonium mandelate, the all ammonia of which is converted into urea. I have found, however, that with calcium mandelate it is possible to obtain a sufficiently acid urine. The values of *p*H obtained have corresponded exactly with those following administration of sodium mandelate with ammonium chloride or of ammonium mandelate.

The results of treatment in 8 cases are summarised in the accompanying Table.

Result of Treatment with Calcium Mandelate

Case No.	Sex and age.	Duration of infection.	Diagnosis.	Days before urine became sterile.	Lowest *p*H during treatment.
1	F. 41	*B. coli*, 5 yrs.	Pyelitis.	4	4·9
2	F. 29	*B. coli*, 2 yrs.	,,	4	4·8
3	F. 62	*B. coli*, ?	Pyelitis; polypus vesicæ; cholelithiasis; cholecystitis.	9	4·8
4	F. 57	*B. coli*, 4 yrs.	Pyelitis; ureterolithiasis.	6	5·1
5	F. 21	Hæm. strep. 1 mth.	Cystitis; pregnancy.	2	5·5
6	F. 35	*B. coli*, ?	Pyelitis; fibroma uteri; chron. salpingitis; cystic degen. ovaries.	5	5·0
7	F. 33	*B. coli*, 8 days.	Pyelitis; nephrolithiasis; dilatation both pelves.	Crystal clear within 10 days.	5·3
8	M. 51	*B. coli* and *proteus*, 3 yrs.	Pyelitis; nephrolithiasis, dilated calyces and ureter; stone in bladder; urethral stricture.	After 10 days no growth of *B. coli*. Continued growth of *proteus*.	5·5

Case 5 was given 6 grammes of mandelic acid daily, the others 12 g.

With all the reservation necessary when comparing groups of 30 and 8 patients, I must nevertheless express my opinion that the infection of the urinary passages was if anything more serious in the 8 patients who received calcium mandelate than it was in those who received sodium or ammonium mandelate. And the therapeutic result was at least equally satisfactory. It is especially worth noticing that the urine became sterile in Case 4, in which pyelitis was complicated by the presence of an ureterolith and dilatation of the urinary passage. The same thing happened in Case 7, where there was nephroptosis, dilatation of the pelvis, and a kink in the ureter. In Case 3, where pyelitis was complicated by polypi in the bladder, a month's treatment with sodium mandelate plus ammonium chloride had no effect on the infection; yet after giving calcium mandelate for nine days the urine was sterile. It is hard to see how the calcium salt could be more effective than sodium mandelate plus ammonium chloride, when—as in this patient—the acidity of the urine is identical, and it is easiest to assume that continued treatment with sodium mandelate would have given the same result, though sterility of the urine is seldom so long delayed. If there is a therapeutic difference, it is presumably attributable to some action by the calcium ion itself on the infection.

Regarding the question whether it is justifiable to give mandelic acid in cases of renal insufficiency, I would point out that three weeks previously this patient had had serious renal insufficiency with temporary anuria and greatly increased blood-urea—a condition, I suppose, of "azotémie par manque de sel." The mandelic acid did not in any respect impair the function of the kidney.

Of the two patients whose urine did not become sterile, the first (No. 7) had bilateral nephroptosis, dilatation of the pelvis and a kink in the ureter. On the tenth day (when this report was brought to a close) the urine was as clear as crystal, but still gave a scanty growth of *B. coli*. In Case 8 there was associated infection by *coli* and *proteus*; also there was a stricture of the urethra, retention of urine, dilatation of the calyces and the pelvis on one side, and a concretion in the pelvis—conditions which make it unlikely that care will be attained by medical means. The *proteus* infection did not respond to the treatment, but, on the other hand, the *coli* disappeared within ten days.

All 8 patients who were given calcium mandelate agreed that it had no taste, and in 5 of them it caused no dyspeptic symptoms whatsoever. Among these patients was No. 3, who had previously had sodium mandelate and ammonium chloride which made her vomit.

Of the 3 patients who had nausea after calcium mandelate, No. 6 had no dyspepsia when she took the medicine between meals and washed it down with water. No. 7 was only nauseated for the first two days, and No. 8 not until six days had passed. In no case was it necessary to stop the treatment because of dyspepsia. Thus there can scarcely be any doubt that calcium mandelate has a great advantage over treatment with sodium mandelate and ammonium chloride.

SUMMARY

A new preparation in which mandelic acid is presented as the calcium salt has been tried in the treatment of urinary infections. It is tasteless, seldom causes dyspeptic symptoms and gives a sufficiently acid urine.

Treatment of 8 patients with this preparation gave the same good results as treatment with other preparations of mandelic acid.

I am indebted to Prof. Svend Hansen, chief of the surgical department of the Sundby Hospital, for permission to report these cases.

* It was placed at my disposal by the Ferrosan Co., Copenhagen, and is sold by them under the name of Camygdal and is obtainable in Great Britain from H. R. Napp Ltd., London.

CORNEAL GRAFTING (KERATOPLASTY)

REPORT OF A CASE

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Corneal grafting was first successfully practised as long ago as 1888 by von Hippel. His method was to use a mechanical trephine, which is, however, a difficult instrument to control, and liable to inflict severe damage. The same method has been used by Elschnig. Castroviejo (1934) employs a twin-bladed knife which cuts a rectangular graft; this he retains in position by means of a conjunctival flap. Tudor Thomas (1930, 1931) obtains his graft by using a circular trephine of just over 4 mm. in diameter. In his method the cornea is cut with the trephine as far as the deeper layers, and he then uses a pair of finely curved bevelled scissors to cut the remaining portion. This shelving process prevents the cornea from becoming dislodged and slipping into the anterior chamber. The recipient's eye is trephined in the same way, but the instrument is of a slightly larger diameter. Thus the graft can be more easily slipped into the bed. It is retained in position by an ingenious method of cross-stitching.

To retain the graft in position Castroviejo draws the conjunctival flaps together over the graft by undermining the conjunctiva from the limbus backwards above and below. Rycroft (1935, 1936) employs a complete conjunctival flap, which is drawn like a tent over the entire cornea and the graft, and retained in position by a purse-string suture.

INDICATIONS

Cases of grafting are done in which opacification of the cornea is due to interstitial keratitis, healed ulcers, and chemical burns. In interstitial keratitis the eye should have been quiet for at least twelve months.

Cultures should be taken from the conjunctival sac of the donor and the recipient. The operation is contra-indicated if any pathogenic micro-organisms are grown during forty-eight hours' incubation. Tension should be within normal limits. There should be accurate projection of light and there must be no active inflammation.

CASE REPORT

The following case is that of a young man of 21 who two years previously had very severe interstitial keratitis involving both eyes.

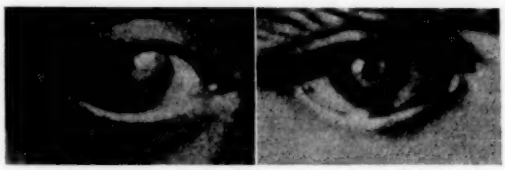
The patient first attended the Eye Infirmary, Bath, in the summer of 1935. Both corneæ were opaque. In the right eye there was perception of light, in the left, of hand movements. The pupils were fully active, but it was not possible, owing to the diffuse corneal opacities, to view even a portion of the fundi through the dilated pupil. It was noted that there was an anterior capsular cataract in the left eye, but owing to the density of the corneal opacities in the right eye I was unable to see whether there was a similar cataract in this eye. He had had 18 months previously a full course of Novarsenobillon, extending over six months, at another eye hospital. As interstttial keratitis can recur, a very small peripheral iridectomy was performed on the right eye, the object being to see how it reacted. The eye remained perfectly quiet after the operation. Since vision in the right eye was less than in the left, vision being so poor that it was useless as an organ of sight, I decided to do the corneal graft if possible on this eye. During the time he was in the infirmary in 1935 he was given mercury and iodide.

It was not until the summer of 1936 that a suitable eye was found from which to take a graft. The cornea for grafting purposes should be quite transparent and clear and of normal thickness. I considered that a cornea taken from a glaucomatous blind eye would be unsuitable, as it would have been subject at some time to abnormal stresses. The eye that became available was taken from a man who was hit with a piece of steel, disorganising the interior of the eye, but leaving the cornea in part uninjured.

OPERATION

The evening before operation the palpebral conjunctiva was painted with 2 per cent. silver nitrate, and afterwards irrigated with an alkaline lotion. Gut. eserin ¼ per cent. was instilled into the right eye. The morning of the operation gut. eserin ¼ per cent. was again instilled into the right eye.

The recipient's eye was anæsthetised with Pantocain, a derivative of novocain that has no deleterious effect upon the corneal epithelium and no effect on the pupil or intraocular pressure. The 7th cranial nerve was blocked with Novutox at the site where its branch crossed the neck of the condyle of the mandible. Complete paralysis of the orbicularis oculi was secured with an injection of 2 c.cm.



Right eye before, and three months after, operation.

Preparation of the site in the recipient's eye was first begun. The conjunctiva was dissected from the limbus in its whole circumference, and the conjunctiva was undermined and freed from the underlying tissue, so that it could be drawn over the cornea by a purse-string suture. Bleeding points were few and were easily controlled by adrenaline, and there was no need to use a cautery. The site of the graft was delineated by placing a trephine (4·63 mm.) over the centre of the cornea and cutting through the epithelium. The trephine was removed and a drop of sterile fluorescein was placed on the cornea. This outlined the graft. When the section had involved half the thickness the trephine was slightly tilted to one side so that the cutting edge was directed obliquely through the deeper layers of the cornea. The anterior chamber was thus entered. The trephine was removed and the section was completed by dividing the remainder of the cornea with a pair of scissors whose cutting edges were bevelled.

The corneal graft from the donor's eye was removed in the same way, but with a trephine of 4·5 mm. so that the piece of cornea could easily fit into the bed prepared. The corneal graft was removed by sliding a repositor beneath it and placing it in a watch glass filled with sterile normal saline and little above body temperature.

The bed for the graft having been prepared, very little time was lost between removing the graft from the donor and placing it in its new bed. The conjunctiva was now drawn completely over the graft and the cornea, the former being kept in position by an oiled repositor which was placed through a small hole underneath the "tent" so to speak, and held gently on the surface of the cornea, while the purse strings were drawn tightly over it. One now felt that the graft was really in position and had not been dislodged when drawing the conjunctiva over it. Atropine oil was instilled and both eyes bandaged firmly.

PROGRESS

On the fourth day the bandages were removed and one drop of atropine oil was instilled into the operated eye. The graft at this time could not be seen as it was still completely covered with conjunctiva. The patient complained of no pain or discomfort. The eyes were again firmly bandaged. On the sixth day the bandages

were again removed and the graft was seen in position and it was quite clear and transparent. Through it could be seen the white opaque lens capsule resting on the deep surface of the graft. By the tenth day the graft had taken, but it did not appear as clear and transparent as before around its periphery. The graft appeared to be going opaque, but there was a clear area in the centre. The patient complained of pain. Atropine oil was instilled and the eye firmly bandaged. As the tension remained +1, atropine was discontinued three weeks after the operation. Now the graft began gradually to clear. The tension however remained high for a further two weeks, when it slowly returned to normal. The whole of the time during which the tension was raised the eye was firmly bandaged. Three weeks after the operation the patient was able to count fingers two feet away. At the present time vision remains the same, and the graft is transparent.

COMMENTS

The method employed in this case has, to my mind, one great advantage. The conjunctiva when drawn over the graft brings nourishment through the lymph channels to the graft in the first few days when the graft is taking. At the same time the conjunctiva protects the corneal epithelium from damage. The one great disadvantage is that when one has drawn the conjunctiva completely over the cornea and graft, one is not sure that the graft has not been entirely dislodged from its bed, or that it has not been even slightly tilted.

In a case of interstitial keratitis, or in fact in most eye operations, iritis is likely to be produced. Atropine, by dilating the pupil, prevented anterior synechia.

The graft having remained clear, I propose, at some future date, to extract the right lens.

This case was shown at the South Western Ophthalmological Society's meeting in December last.

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CLINICAL AND LABORATORY NOTES

AN ABNORMAL LARGE INTESTINE

ENCOUNTERED DURING APPENDICECTOMY

BY JOHN ALEXANDER MACKENZIE, Ch.M. Aberd.

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ON Sept. 3rd, 1936, I was called to the Victoria Hospital, Burnley, by my house surgeon to see an "acute abdomen."

The patient was a labourer, aged 29, married with two healthy children. His mother had died of "cancer" at 35; his father was alive and well, and his brothers and sisters healthy. Up to the age of 14 he had "incontinence" of fæces; from 14 to 16 he was troubled with diarrhœa, but from 16 to the present date he had been quite healthy. He was well built and healthy looking. He had a mitral murmur due to valvular incompetence, but he was unaware of it and the condition had never given him any trouble. The urine was normal.

The temperature was 101° F., the pulse-rate 120, and the patient had every classical symptom and sign of acute appendicitis. I operated at once and on opening the abdomen by a right paramedian incision was confronted with a much dilated large intestine, which on tracing upwards went up below the liver and on tracing downwards went over the right side of the brim of the pelvis to form the rectum. I discovered the cæcum behind this and partly covered by it, reaching down to within an inch of the brim of the pelvis, while the peritoneum covering this large intestine shaded off from its mesentery over the cæcum, covering it and fixing it down. At that point I could find no trace of the appendix, although the bowel showed inflammation. No small intestine was visible; but passing my hand in front of this dilated part of large intestine over to the left side I found all the small intestine congregated there and by tracing it found where it entered the cæcum behind this dilated large intestine. On splitting the peritoneum where the small intestine joined the cæcum in the acute angle pointing towards the umbilicus I found a small and acutely inflamed appendix which I removed. I resutured the peritoneum where I had split it and closed the abdomen as quickly as I could, because the man was desperately ill.

The patient made an uninterrupted recovery and was later examined by barium meal. Fig. 1 shows the barium leaving the stomach and making for the left side of the abdomen where the whole of the small intestine is collected. A second radiogram showed the meal entering the cæcum behind and at the upper angle where the entrance was, the diseased appendix was situated. It could also be seen passing up the ascending colon and into the transverse colon. A third radiogram showed the meal coming down the descending colon to the normal sigmoid flexure, but when it reached the brim of the pelvis it

1 2

FIG. 1.—Radiogram after barium meal. Small intestine seen on right of abdomen.
FIG. 2.—Barium enema filling the colon.

suddenly changed its mind and ascended transversely across the abdomen to the hepatic flexure, lying in front and covering the original hepatic flexure and descending in front and a little to the left of the cæcum where it entered the pelvis on the right side to become the rectum. Fig. 2 was taken after a barium enema and shows the splenic flexure and transverse colon also. In all the radiograms a large gland could be seen to the left of the vertebral column.

I have often found the sigmoid and rectum on the right side of the pelvis, especially in women; and in all these cases there has been a well-marked mesentery. But I have never seen or read of any case like this, nor have I seen any developmental theory to explain it. Possibly the condition was the cause of the incontinence of fæces in early life.

I am indebted to Dr. James Grieve, radiologist to the Victoria Hospital, for preparing radiograms for me.

CONTINUOUS VENOUS HUM IN CIRRHOSIS OF THE LIVER

By J. L. Bates, M.B. Lond.
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The comparative rarity of a venous hum in cirrhosis of the liver and the question of its causation gives interest to the following case.

A man, aged 53, was admitted on March 11th, 1936, to Newcastle General Hospital under Prof. Thomas Beattie for swelling of the abdomen, noticed ten days previously, and dyspnœa on exertion. His increasing pallor and occasional attacks of giddiness had begun four months previously when he was obliged to give up his work as a turner and fitter. He had recently suffered from flatulence and intermittent diarrhœa. There was no history of hæmatemesis. The left leg had been amputated in 1926 at Newcastle Royal Infirmary for chronic osteomyelitis following a war injury. At the same time a blood test was performed and he was thereafter given a course of injections. He used to be a heavy beer-drinker.

The patient was well built but appeared to have lost weight recently. The abdomen contained much free fluid and dilated veins were visible in both loins but not around the umbilicus. The distension made palpation difficult. Liver dullness not increased. Spleen not palpable. No cardiovascular abnormality. The pupils were equal but did not react to light. On auscultation of the abdomen, there was a continuous, loud, high pitched bruit with systolic and inspiratory exacerbation. This was heard only over an area the size of half a crown just below the xiphoid process.

Investigation.—A blood count showed: red cells, 2,340,000; white cells, 3200; hæmoglobin, 20 per cent.; colour-index, 0·4; reticulocytes, 3 per cent. Blood-urea 35 mg. per 100 c.cm. Urine contained a trace of albumin and occasional pus cells. Blood Wassermann, weak positive. Radiography of stomach and duodenum gave no evidence of ulcer or neoplasm. Occult-blood test negative.

Treatment.—The patient was tapped on seven occasions between March 12th and June 5th. Small quantities were obtained at first but later up to 18 pints were withdrawn at a time and the ascites still increased. Shortly after admission he was given a blood transfusion which raised the hæmoglobin to 50 per cent. He was given iron without visible improvement and later mercury and potassium iodide.

Various explanations have been offered to account for the bruit. Rolleston and McNee (1929) cite examples ascribed to dilatation of the coronary vein or a dilated communication between the internal mammary and radicles of the portal vein. Other authors have postulated an arteriovenous anastomosis which has not been substantiated post mortem. Rolleston and McNee also describe a case of continuous epigastric bruit in which post-mortem examination showed cirrhosis of the liver and a thin-walled vein in the falciform ligament as big as one's little finger. In a case described by Lutembacher (1936) the bruit was strictly localised in the xiphoid region and occurred in a syphilitic subject. In Florand's case it was of more widespread distribution and was audible posteriorly. Autopsy revealed a varicose plexus between the internal mammary veins and a persistent umbilical vein. Martini (1893) described a soft murmur over the liver near the right axilla which he ascribed to compression of the inferior vena cava.

Venous hum has been found in Hanot's cirrhosis and Banti's disease and has occasionally been heard only below the umbilicus or above the costal angle. The bruit may be compared with that heard in the left anterior axillary line in some cases of splenic enlargement. In the case outlined above I have tried to find the most probable explanation, taking into account the rarity and the strict localisation of the bruit. One factor may be the associated anæmia, but the transfusion had no effect on the murmur. If it were due to hyperplasia of the para-umbilical veins one would expect to hear it best over the "caput medusæ," but the bruit was not heard at all over the umbilicus. It was not influenced by abdominal paracentesis. This suggested that the cause might be intrahepatic rather than lying in the anterior abdominal wall. Its rarity suggests its dependence on extreme hepatic fibrosis, which would be made more likely by the coincident specific infection.

A consideration of the "bruit de diable" heard where the jugular veins pass through the deep cervical fascia makes it seem probable that a venous bruit is caused by the passage of blood through a constricted lumen into a relatively dilated channel. The murmur in this case was heard at about the level at which the vena cava pierces the diaphragm. The vena cava is adherent to the margin of this opening and just below this the vessel receives the hepatic veins. I believe that the bruit is caused by stenosis of the vena cava by the perivenous hepatic fibrosis. The blood has to pass through this constricted part of the vena cava before entering the wider diaphragmatic hiatus.

I am indebted to Prof. Beattie for permission to publish this case.

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PROGRESS AT THE MIDDLESEX HOSPITAL.—Prince Arthur of Connaught, speaking at a court of governors of this hospital, said that the work was increasing in every direction, including that of cost. It was not possible, owing to lack of funds, to open to the full extent of the institution's 700 beds but 592 were at the public service and in-patients numbered 9821 in 1936. The cost of the hospital and cancer wing was approximately £186,000 as against £106,000 a dozen years ago.

BEQUESTS TO HOSPITALS.—The late Mr. Caleb Diplock of Polegate, Sussex, has left many charitable bequests. Those to hospitals include £20,000 to Guy's Hospital, £8000 to St. George's Hospital, £5000 to the Royal National Orthopædic Hospital, £4000 each to the Westminster Hospital, to the London Hospital, and to the Middlesex Hospital. St. Bartholomew's Hospital and Charing Cross Hospital each receive £3000, and the Princess Alice Hospital, Eastbourne, £5000.

MEDICAL SOCIETIES

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

THE annual congress of this society was held on April 29th to May 1st, under the presidency of Dr. GORDON HOLMES, F.R.S., who delivered an address on the

Prognosis in Papillœdema

He said that papillœdema was one of the common conditions which were a meeting ground of the ophthalmologist and the neurologist, and for academic and practical reasons concerned the practice of both. No aspect of the condition demanded more attention than its prognosis in regard to preservation of vision. Noteworthy contributions on the matter had been made to the society's Transactions, particularly by Dr. James Taylor and Mr. Leslie Paton. The presence of papillœdema was often regarded as an immediate danger to vision, and in different branches of the profession there was a good deal of misapprehension on the point. In this address the president proposed to discuss only that form of papillœdema which was associated with increased intracranial pressure, leaving aside its diagnosis. The condition was now recognised to be essentially an œdema of the nerve head, in which—for a time at least—there was little structural damage or functional disturbance of the nerve elements, though these might be strangled and destroyed by overgrowth of interstitial tissue when the œdema subsided into atrophy. In the latter stage recovery of vision could not be expected. The essential ætiological factor in papillœdema was increased intracranial pressure, therefore relief of that pressure would lead to a disappearance of the condition and so remove the risk of blindness or serious visual deterioration if the relief could be given before the development of secondary changes in the disc. Often there were cogent reasons against immediate operation. If the cause of the condition was a tumour, its removal was frequently impossible, especially if it were an extensive infiltrating one of the glioma type; in that kind of case, operation quite often reduced the length and utility of life. Moreover, operation, even in the most skilled hands, entailed considerable risk to life. To the question of how long measures for relieving pressure could be delayed without endangering vision no general answer could be given. Even intense œdema might not cause any disturbance of vision, as was emphasised by Hughlings Jackson 48 years ago; vision, indeed, might remain unimpaired for long periods. In rare cases the papillœdema subsided without surgical intervention or other specific treatment, and vision remained unaffected. In most of those cases it was impossible to ascertain the exact nature of the condition to which the papillœdema was due; in some there might be a tuberculous or gummatous tumour which became quiescent or a gliomatous growth which degenerated; but internal hydrocephalus was probably responsible in many of them for the raising of intracranial pressure. In others there might be an external hydrocephalus or a serous meningitis.

In most cases of papillœdema relief of intracranial pressure was necessary, or soon became so, in order to save sight, and the important question arose of recognising the time when further delay was dangerous. The more rapidly the congestion and swelling of the optic disc developed, the more intense did the papillœdema become and the greater the danger to sight if no relief were undertaken. A swelling of 4 or 5 diopters was a warning against undue delay. Equally serious was great engorgement of retinal veins and early and extensive hæmorrhages on the surface of the swollen disc. An even more important danger was a narrowing of the arteries in the swollen disc and its vicinity. Frequent examination should be made in order to evaluate the fundal changes and detect the earliest signs of secondary atrophy. A further serious sign was the transient loss of sight complained of by many patients; this might follow sudden changes of posture. If the tumour or other cause of the increased pressure could not be removed by extirpation, a decompression craniectomy usually caused subsidence of the congestion in from two to four weeks, and if secondary changes had not appeared by then, there was no further risk of impairment of vision.

Papers were read by Mr. R. FOSTER MOORE and Mr. J. COLE MARSHALL on the

Treatment of Retinal Detachment

Mr. Foster Moore's communication summarised some observations on the technique of katholysis in the treatment of retinal detachment and on the early results obtained in 31 cases. The object of the procedure was to produce coagulation in the choroid as the result of the liberation of sodium ions at the negative terminal inserted through the sclerotic; at the same time, hydroxyl ions were set free. The apparatus he used was made by Messrs. Hamblin; the needles were either straight, or bent at a right angle. The length of the active part of the needle varied from 1 mm. upwards; they were made of platinum iridium. The best strength of current he had found to be 5 milliampères; usually he passed it for six seconds. An almost unlimited number of punctures could be made, even though the eye might be rather soft. The flaccidity might make subsequent trephining difficult. Bubbles of gas were seen at the site of the puncture from which there was always some escape of fluid; when the escape was free no additional exit was required for the subretinal fluid. But it was better to make a definite hole by trephining or with the galvanocautery. Of the 31 cases, 14 were myopic. In 12 of them the retina was replaced and remained in position when last the patient was seen; 2 were discharged slightly improved, 4 much improved, 9 not improved. But the longest period since the treatment was not more than twelve months, and in many of them only a few weeks. The advantages of the method were that the apparatus was light, portable, and easy to use; its effects were sharply localised, and less damage was done to intra-ocular tissues than with diathermy. It was unnecessary to divide the muscles unless exposure was needed of the sclerotic far back. The crucial test, however, was not in how many cases the retina went back, but in what proportion the replacement was permanent. To that question he had at present no answer.

Mr. Cole Marshall said that in katholysis the whole length of the needle was active, not only its base; a keratitis was formed and a retinitis round the region where the bubbles had been liberated which might subsequently cause changes in the choroid. Mr. Foster Moore appeared to retain the needle in the eye longer than did most continental operators, and to use a slightly stronger current. Katholysis

was not only a good localising agent but a good adjunct to diathermy scarring. Mr. Marshall had found katholysis very beneficial in conjunction with diathermy, using very fine needles for the latter. The transillumination method described by Weve he regarded as very important, as also was the continuous use of saline during the operation, this being applied every minute.

On April 29th a discussion on

Exophthalmic Ophthalmoplegia

was opened by Dr. W. RUSSELL BRAIN. He said that in this condition exophthalmos and ophthalmoplegia might be either unilateral or bilateral. General symptoms of thyrotoxicosis, usually slight, might be present if the condition arose spontaneously; if it followed thyroidectomy for hyperthyroidism such symptoms were often absent, the basal metabolic rate being normal, or even subnormal.

The separation of exophthalmic ophthalmoplegia as a syndrome from exophthalmic goitre depended on a number of features, the most important of these being that it might occur after operation not only in the absence of thyrotoxicosis but in the presence of actual hypothyroidism. It also differed from Graves's disease in its age-incidence and its sex-incidence, in the usually slight degree of the thyrotoxic symptoms when present, in the usual lack of response to thyroidectomy, and in the somewhat atypical histological picture in the thyroid. Exophthalmic ophthalmoplegia was a disorder of middle age. The mode of onset was usually subacute; one eye became increasingly prominent over a period of three to four months, the ophthalmoplegia and the double vision developing concurrently. Generally the other eye lagged behind in the matter of proptosis, and might not exhibit ophthalmoplegia at all. Both exophthalmos and ophthalmoplegia might develop simultaneously in both eyes in three or four months. Exophthalmos was present in all Dr. Russell Brain's cases: unilateral in 5, bilateral in 24. Among the latter the degree of exophthalmos was equal in 8, unequal in 16. An asymmetry of the eye protrusion was present in 21 out of 29 cases. The ophthalmoplegia was a paresis or paralysis not of individual extra-ocular muscles but of movements of the eye in a particular plane. In the 12 unilateral cases, elevation was the movement most often affected: in the 17 bilateral cases abduction was affected 31 times, elevation 23 times, depression 18 times, adduction 17 times. In 6 patients all movements of both eyes were affected. Widening of the palpebral fissures with retraction of the upper lid was the usual finding in both unilateral and bilateral cases, but ptosis was present on both sides in 5 cases, and on one side in 3 cases with bilateral ophthalmoplegia. With regard to the pathology of the ocular muscles the changes consisted of marked œdema, with foci of lymphocytic infiltration, and, in later stages, fibrosis. In one portion of levator palpebræ superioris removed at operation Prof. H. M. Turnbull found general œdema and great enlargement of muscle-fibres. In 4 out of 5 cases sections of the thyroid gland examined by Prof. Turnbull showed that the gland was atypical, and in the other case the gland was the same as in Graves's disease.

The usual treatment given for exophthalmic goitre had been, in his experience, disappointing when applied to exophthalmic ophthalmoplegia. Thyroidectomy was done in 4 cases. In one of them there was distinct general improvement and considerable improvement in the condition of the eyes, though some ophthalmoplegia remained. Following orbital decompression there occurred an immediate recession of the eye, but the ophthalmoplegia remained unchanged in one case and was only moderately benefited in the other two. Dr. Brain looked forward to the day when the condition could be dealt with in a more physiological manner than by surgery.

Prof. F. R. FRASER gave a general survey of the similarities between toxic goitre and myasthenia gravis and said that he had been able to test the effect of prostigmin on two patients with toxic goitre. The first was a woman aged 41, who had begun to show signs of toxic goitre—tremors, palpitation, and marked sweating—at the age of 26. A year later she developed exophthalmos, more marked on the right side, diplopia, and a pronounced ptosis of the left upper eyelid. The ophthalmoplegia progressed rapidly and interfered with her work as a teacher. The drooping of the eyelid became more marked towards the end of the day, and at the end of the school term the diplopia was much more severe. In 1925 ophthalmoplegia definitely improved after partial thyroidectomy, and the ptosis improved so much that she could resume teaching. The tachycardia and tremors, however, never disappeared. She was accordingly treated with prostigmin (2·5 mg.), a large dose whose possible upsetting effects were countered by atropine administered some 20 minutes beforehand. Four minutes after giving the prostigmin there was improvement in the upward vertical movement of the right eye; in a few minutes the axes of the eyeballs became parallel on looking straightforward, there was a twitching of the orbicularis, and diplopia was only present when the patient looked above the horizontal. Seventeen minutes after the injection diplopia was only to be found on extreme upward elevation of the eyes. At that stage the patient began to go back a little, as diplopia could be elicited more easily, and after half an hour the axes were again deviated. She said that during the rest of the evening her eyes were stronger. A week later a similar dramatic result was achieved. The second patient was also a woman aged 41, whose toxic goitre had developed 9 years previously, beginning with a feeling of weariness. A year later exophthalmos was noticeable, without severe toxicity. Then diplopia appeared. Thyroidectomy was carried out in 1930, and since then the ophthalmoplegia had remained stationary. During the last few years the patient had been treated with thyroid because of lassitude and general depression, and in the last year the exophthalmos had become more pronounced than ever before. Prostigmin had no effect. The difference in results in these two cases suggested, Prof. Fraser said, a different pathology, or that the disease process in the second patient had so progressed that it could not respond.

Mr. H. B. STALLARD also described a case of exophthalmic ophthalmoplegia in a man aged 31 in whom the thyrotropic hormone of the anterior lobe of the pituitary stimulated the thyroid gland, increasing the exophthalmos, and causing typical thyrotoxic manifestations.

The PRESIDENT said that in a certain proportion of cases of proptosis of the eyes there were very few other symptoms of thyrotoxicosis; notably the pulse-rate was not increased. Possibly there were three types of case. Prof. Fraser had shown that different reactions might follow the use of prostigmin, thus indicating two classes; and he had seen instances of a rarer condition characterised by definite weakness

of some of the ocular muscles with rapidly developing exophthalmos; some subluxation of the globe had been described in cases of thyrotoxicosis. He considered that the transient palsies were due to a sudden stretching of the muscles, due to mechanical causes, in the orbit itself. As to pathology, Sir William Gowers had referred many years ago to the possibility of a primary degeneration of the cells occurring in these cases. Vigor demonstrated leucocytic infiltrations in myasthenia gravis; but Mr. Stallard had said the muscle-fibres in his case did not show pathological change. The question whether there was a change in the nervous supply of the muscles had not been answered. In ophthalmic ophthalmoplegias there was some variability of the symptoms; several patients said their ocular movements were fuller in the morning than when they were tired at the end of the day. This exhaustibility of ocular movements brought these cases more into line with myasthenia gravis, as Prof. Fraser had said.

The Nettleship Medal

During the congress the President presented the Nettleship Medal to Mr. H. B. Stallard, particularly for his work on the treatment of glioma of the retina by radium emanations.

GASTRO-ENTEROLOGY WEEK IN FRANCE

THE International Society of Gastro-enterology has organised its second congress which will take place in Paris during the Universal Exhibition on Sept. 13th, 14th, and 15th under the presidency of Prof. Pierre Duval (Paris). The subjects for discussion will be early diagnosis of cancer of the stomach, and it will be dealt with by French and German speakers. The collected reports of the French contributors will be presented by Prof. Duval and Prof. Gosset with the collaboration of Prof. Carnot (clinical and serological diagnosis), Dr. Gutman (radiology), Dr. Moutier (gastroscopy), Dr. Garin (photographic gastroscopy), Prof. Labbé (chemical diagnosis), Dr. Yvan Bertrand (pathological histology), and Dr. Gatellier and Dr. Charrier (operative diagnosis). Prof. Konjetzny will present the collected reports of the German contributors with the collaboration of Prof. Sauerbruch (surgery), Prof. Buerger (chemical diagnosis), Prof. Berg (radiology), Prof. Henning (gastroscopy and gastrophotography), and Prof. Staemmler (pathological anatomy). The second subject for discussion will be intestinal obstruction, and Dr. Mogena (Spain) will deal with it from the medical side, Dr. Bottin (Belgium) from the physiopathological, Dr. Kryuski (Poland) from the radiological, Sir David Wilkie (Great Britain) from the surgical, and Prof. Bindo de Vecchio (Italy) from the pathological-anatomical.

At the end of the Paris congress the International Congress on Liver Insufficiency will meet at Vichy on Sept. 16th, 17th, and 18th under the presidency of Prof. Loeper. It will have a medical and a therapeutic section, and the subjects for discussion will be hepatic œdema, the malarial liver, enlarged liver in children, sulphur metabolism, the liver from the point of view of surgical intervention, and hepatic drugs.

Dr. A. F. Hurst is president of the British committee of the society, and Dr. T. C. Hunt, 49, Wimpole-street, London, W.1, is the hon. secretary.

NEW INVENTIONS

T-TUBE FOR GALL-BLADDER OPERATIONS

THERE are several types of T-tube for draining the common bile-duct, most of these being modifications of Kehr's pattern. During the last few years the indications for exploration and drainage of the biliary ducts have been greatly extended, and this is now rarely omitted in operations for cholelithiasis, as soft pigment stones, collections of biliary sand, inspissated pus, and inflammatory debris cannot always be palpated, even when present in large amounts.

The T-tube I use is the thickness of No. 7 English catheter gauge, and it is 25 in. in length. The

transverse trough-shaped piece is 2 in. long, and is fitted obliquely to the tube. The soft rubber trough is easily inserted into the incision in the common duct, being securely fixed into position by stitching over it the edges of the incision in the duct by means of a few interrupted catgut sutures. The long limb of the tube is led through the abdominal wound or through a special stab wound, and is anchored to the skin margin to prevent it from being inadvertently withdrawn. By means of a glass connexion, which is attached to another length of rubber tubing, the bile is made to drain through into a small medicine bottle which is fixed to the patient's side or to the bed. Some of the bile thus collected is returned per rectum two or three times a day. I find this tube very easy to insert into the common duct; and, what is more, it is easy to remove after it has done its work. Provided there is no obstruction in the lower reaches of the duct, there is no discharge of bile through the wound after the tube has been withdrawn.

The tube is made to my specification by Messrs. John Bell and Croyden, Wigmore-street, London, W.1.

RODNEY MAINGOT, F.R.C.S. Eng.
Senior Surgeon to the Royal Waterloo Hospital and to the Southend General Hospital.

JOURNÉES MÉDICALES INTERNATIONALES DE PARIS. A conference organised by the Révue Médicale Française will take place in Paris on June 26th to 30th, and will discuss the biological, clinical, and therapeutic action of hormones. The itinerary includes sessions at which papers will be read and visits made to appropriate centres. Communications from those requiring detailed information should be directed to Dr. Louis Lamy, treasurer of the Journées Médicales, 18, Rue de Verneuil, Paris, accompanied with the necessary fee by cheque or postal order. The fee for admission to the Congress for doctors is 100 Frs.; the subscription for medical students, and for the wives and children of doctors, is 50 Frs. Adherence will secure for the applicants admission to all the sessions and to various pleasure reunions, which include a performance at the Théâtre des Champs-Elysées, a reception by the Municipal Council of Paris, and an evening visit to the Louvre.

REVIEWS AND NOTICES OF BOOKS

1. Cushny's Text-Book of Pharmacology and Therapeutics

Or the Action of Drugs in Health and Disease. Eleventh edition. By C. W. EDMUNDS, A.B., M.D., Professor of Materia Medica and Therapeutics and Director of the Pharmacological Laboratories in the University of Michigan; and J. A. GUNN, M.A., M.D., D.Sc., F.R.C.P., Professor of Pharmacology and Director of the Nuffield Institute for Medical Research, University of Oxford. London: J. and A. Churchill. 1936. Pp. 808. 25*s*.

2. An Introduction to Pharmacology and Therapeutics

Fifth edition. By J. A. GUNN. London: Humphrey Milford, Oxford University Press. 1936. Pp. 240. 5*s*.

1. A thoroughly revised edition of this standard work was published in 1932 when it was also brought into conformity with the new British Pharmacopœia. The eleventh decennial revision of the Pharmacopœia of the United States has made another edition desirable. The most striking change is a rearrangement in the order of the book. It is not yet possible to arrange substances used as drugs in any strictly scientific way and in whatever order they are arranged some repetition is inevitable. In this edition the simpler substances—e.g., salts and inorganic compounds—are dealt with first and the more complex substances later. On the whole, this rearrangement is an improvement on the plan of previous editions.

The book has been brought up to date in several important respects. For example, a fuller account of acetylcholine and its derivatives is given than in previous editions, and the use of derivatives of physostigmine in myasthenia gravis is dealt with. New amœbicides such as Carbasone, Chiniofon, and Vioform receive full discussion, and protamine insulinate is mentioned. There is in fact hardly a section which does not show signs of revision. Excellent accounts of the vitamins and hormones are given. It is curious to find no mention of the sex hormones, especially as the gonadotropic factors of the anterior lobe of the pituitary are described. A commendable change is the introduction of structural formulæ for the alkaloids and other substances where these are known. The bibliography which follows each main section has mostly been inherited from Cushny's original book although several more recent references have been added. Its value is doubtful, since few medical students are likely to refer to original papers for information and the number of references given are too few for the research worker, who is more likely to consult a larger work. The authors, however, recognise this defect and have tried to remedy it to some extent by giving as many references as possible to reviews which themselves contain a good bibliography. The book thoroughly deserves the high esteem in which it is held by teacher, student, and practitioner alike.

2. This little book is well known to examiners in pharmacology since too often it seems to be the sole source of information to which the candidates have had recourse. This fact cannot be laid to the author's charge, for he indicates clearly in his preface that the book is intended only to supplement the student's lectures or reading. It is, in fact, quite unlike the usual "cram book," for brevity has been achieved by judicious selection and not by mere compression. It affords an excellent introduction to pharmacology, and when properly used for purposes of revision can hardly fail to help the student. It can be heartily commended, too, to the practitioner who wishes to survey rapidly the changes which have taken place in recent years in our knowledge of drugs. The exhaustion of the previous edition in only two years has provided the opportunity of making minor revisions and of bringing the book into accord with the revised United States Pharmacopœia. The changes are few and the author is to be congratulated on resisting any temptation to expand the book.

Occupational Diseases

By DONALD HUNTER, F.R.C.P. London: H. K. Lewis. 1937. Pp. 122. 9*s*.

THIS book consists of a reprint from the *London Hospital Gazette* of a series of lectures delivered to the Derby Medical Society during 1935. A surprising amount of useful information on a very wide variety of industrial medical subjects is presented in a readable form. The illustrations (of which there are many) are good in themselves and excellently reproduced. The lectures were not designed for specialists in industrial medicine, although few even among experts could fail to glean valuable knowledge from them. In the first lecture Dr. Hunter discusses lead, arsenic, and (very briefly) phosphoretted hydrogen; in the second metal poisonings, industrial infections, and deficiency diseases are rapidly surveyed. The third lecture deals with a wide variety of subjects, including some of the "dust diseases," the toxic gases, benzene, aniline, and the chlorinated hydrocarbons; and in the last a number of topics including cancer, dermatitis, nystagmus, Workmen's Compensation, and the prevention of industrial disease are reviewed. It is obviously impossible to deal profoundly in a little over 100 pages with so wide a field.

The book will prove especially valuable, we think, to practitioners in industrial areas or works, and certifying or examining surgeons. We must join issue with the author upon one major and a number of minor issues. The major issue concerns the diagnosis of industrial lead poisoning. To suggest that a diagnosis of lead poisoning cannot be established unless one of the toxic episodes has occurred (see p. 11) is, we believe, contrary to modern industrial medical opinion. The work of R. E. Lane and others enables a diagnosis of lead poisoning to be made before the occurrence of a toxic crisis. A falling Hb per cent., with or without a rising "punctate count," in a worker exposed to lead raises a suspicion that "absorption" is passing over into "poisoning." This suspicion becomes a certainty when these changes are well marked or can be shown to be progressive. This is a point of considerable medico-legal importance. The minor points are the following: metal fume fever is now known to be caused by other metals besides zinc (e.g., cadmium and magnesium); the "sericite" theory of the causation of silicosis rests upon a less solid basis of fact than Dr. Hunter appears to suggest; the Kolar Gold miners suffer from pneumonoconiosis; the clinical dictum that occupational cramps "are always associated with anxiety . . . to get the work done in time and up to standard" would be seriously questioned in many quarters. Dr. Hunter's "15-point summary" of the prevention of disease in industry must not be taken as an adequate summary of the potential contributions of industrial medicine to industry.

As we have said this book provides a useful clinical summary of that part of industrial medicine which is concerned with the diagnosis of the recognised diseases and toxæmias of occupation. We hope that it will have a wide circulation amongst industrial practitioners concerned with the prevention and treatment of these conditions.

Christian R. Holmes, Man and Physician

By MARTIN FISCHER. Springfield, Ill.: Charles C. Thomas; London: Baillière, Tindall and Cox. 1937. Pp. 233. $4.

THIS is a sumptuous memorial volume in format, printing, and binding. It is fortunate that the subject of the biography led a life of single-minded absorption in a great ideal or the terms of eulogy would seem unduly high. Dr. Christian Holmes was the centre of medical progress in Cincinnatti. The son of a Danish immigrant, he was 15 years old when he landed with his father in New York. He had been well taught and having considerable skill as a draughtsman he secured work at once in the designing rooms of a civil engineer. As a young man work as a self-taught engineer brought him to Cincinnatti, and in 1879 he began to read medicine at what was then a rather primitive centre. On qualification he became resident in the Cincinnatti Hospital and for the rest of his life he was connected with the institution and devoted to its development. In practice he was energetic and versatile and quick professional success enabled him to pay regular visits to the chief medical centres in Europe, with the result that he took the lead in a movement for the construction in Cincinnatti of a new central hospital. The details of this work—how public support was obtained and how Holmes organised a financial backing—make an interesting story and show him to have been a man of initiative, drive, and perseverance. Soon a medical college arose in connexion with the hospital and in 1916 Holmes was able to claim for the students of medicine in Cincinnatti that they had facilities for clinical study of a high standard, laboratories available for teaching and research, and a fine corps of instructors. Christian Holmes died in 1920, having devoted 40 years to the object which he set before him almost at the outset of his career—to establish in Cincinnatti a first-class medical centre.

Cytologie du liquide céphalo-rachidien normal chez l'homme

By H. JESSEN (Aarhus, Denmark). Paris: Masson et Cie. 1936. Pp. 168. Fr.40.

IF the scope of this monograph is limited the work it describes is nevertheless important. Dr. Jessen deserves thanks for carrying through a laborious task which many would find uncongenial. The book has three sections, dealing respectively with the morphology, enumeration, and probable function (or lack of function) of the cellular constituents of normal cerebro-spinal fluid. An exhaustive account and criticism of the various technical methods for dealing with the fluid justifies the author's contention that the subject is in a state of great confusion, attributable to the tendency of the cells to rapid degeneration, and the consequent medley of different classifications and results according to the methods used by various observers. He himself has worked on about 500 individuals, after having selected what he believed to be the best techniques and modified them for his purpose. His reasons for his choice are convincing, and since he indicates wherein they are unsatisfactory subsequent investigators are not likely to accuse him of making exaggerated claims for them. The same moderation characterises his general conclusions. He finds that there are three types of cells: (1) those resembling and possibly identical with lymphocytes; (2) larger cells resembling the large lymphocytes of the blood, but probably of epithelial origin; and (3) irregularly shaped cells, characteristic of the cerebro-spinal fluid, whose nature and origin can only be surmised. All three are very variable in number, both in different individuals and in the same individual at different times, and all tend to degenerate very rapidly, in vivo and in vitro. Other types of cell, such as granulocytes, are always the result of contamination. A count of more than 10 cells per c.mm. is pathological, and between 5 and 10 per c.mm. suspicious, but extensive variations below these concentrations are common and not significant. In view of the ample opportunities of the cerebro-spinal fluid to pick up cellular elements from the meninges during its circulation, their occurrence and number must be regarded as fortuitous in the absence of definite evidence to the contrary, and no function can be ascribed to them.

Although the outcome of this study seems meagre in comparison with the amount of labour involved, the monograph gives an excellent review of the subject, contains much sound and critical discussion of technical matters, and has an exhaustive bibliography. It will be of distinct value to those interested specially in the cerebro-spinal fluid, and furnishes a much better basis than has hitherto existed from which to start pathological and diagnostic studies.

A Dissertation on the Sensible and Irritable Parts of Animals

By ALBRECHT VON HALLER. Baltimore: Johns Hopkins Press. 1936. Pp. 49. $1.

THIS is a pleasing reprint of a minor neurological classic and its interest is much increased by an excellent introduction by O. Temkin. Originally published by von Haller in 1752 when he was professor of physiology at Göttingen, it was translated into French and thence into the English version of 1755 which is here reproduced. Haller's thesis was that only those parts of the body which have nerves possess "sensibility" while "irritability" is a property of muscle. It was a clarifying conception if only because it at once aroused serious and substantial criticism: surgeons challenged his facts—e.g., about the insensibility of periosteum—while experimentalists rightly objected to the narrow interpretation of irritability. His work was indeed a stepping-stone so wobbly that it led others to build a bridge, and it is now of little more than archæological moment. The reprint has some English interest for the title page is reproduced in facsimile and shows the stamp of the "Warrington Dispensary Library," reminding us of the pioneers in medicine and education who brought fame to that grim town 150 years ago.

Dr. Argyll Campbell and Dr. E. P. Poulton have written an addendum to their book "Oxygen and Carbon Dioxide Therapy," reviewed in our issue of March 2nd, 1935. It is entitled "The Oxygen Tent and Nasal Catheter" and will be supplied gratis to purchasers of the book who apply to the Oxford University Press, Amen House, Warwick-square, London, E.C.4.

MEDICINE AND THE LAW

Epilepsy and Criminal Responsibility

IN R. *v.* Edwards the accused was found guilty at Leeds assizes last March of having murdered his fiancée. The defence did not dispute that the dead woman met her death at the hands of the accused man. The evidence, however, showed that he and she had been on the best of terms and no motive could be assigned for his violence. It was suggested at the trial that there was a long history, from the time the accused was three years old, of entirely unprovoked attacks ending in some kind of fit or hysterical seizure involving unconsciousness. It was proved that a relative of Edwards had died of fits. The defence called two doctors who came to the conclusion that Edwards was an epileptic subject. All the medical witnesses agreed that, if the attack had been committed during an epileptic seizure, it was committed at a time when he was incapable of forming an intent. These considerations were put forward on his behalf in the Court of Criminal Appeal, with the argument that the jury should have been directed at the trial upon the question of the proof of intent; it was contended that the trial judge should have told the jurors that, if they were left in doubt whether the attack was committed during an epileptic seizure, they could not return a verdict of murder because the requisite intention would not have been proved.

Lord Hewart dismissed this argument. He regarded the defence of epilepsy as a defence of insanity, and he repeated what he has so often said before—namely, that the burden of establishing the defence of insanity is always on the defence. It is now suggested, he said, that although an inchoate defence of insanity fails and the proof of it is not made clear, it may nevertheless leave the minds of the jury in a state of flux or uncertainty, so that they can find a verdict of either "not guilty" or "guilty of manslaughter." That proposition is not the law; nor can it be permitted to undermine the well-known rules in McNaghten's case.

Psychology in Prisons

While the criminal law thus continues to recognise at assizes and in the Court of Criminal Appeal only one species of insanity and to require strict proof of the existence of this insanity from the accused, the annual report of the Commissioners of Prisons, just issued for the year 1935 (Cmd. 5430, 2*s.*), contains a corrective. "It would be helpful," writes the Medical Commissioner, Dr. W. Norwood East, in his important contribution to the report, "if justices and police authorities remembered that the diagnosis of the mental condition of an accused person does not rest merely between sanity, insanity and mental deficiency." He then proceeds to set out the classification of psychoses encountered and identified by the medical officers of English prisons. Dr. East, as his previous reports have shown, approaches with caution the psychiatric treatment of crime. Necessary and useful as it may be, he regards it as a dangerous weapon when it leads people to believe that benefits will follow although failures outnumber successes. He reasserts his view that psychiatric treatment of criminals must follow the method of science and that it has as yet produced no impressive series of carefully tested results. In the first half of the nineteenth century the phrenologists claimed that their doctrines could be applied to analyse the nature of certain crimes and to provide a sound judgment of the appropriate punishment. After the phrenologists came the anthropologists with fresh speculations on the cause and prevention of anti-social conduct. Dr. East would have us test the application of psychological medicine to criminal mentality by the same scientific method as might have exposed the inadequacy of conceptions formerly fashionable. He commits himself to the definite statement that psychological treatment is unnecessary and undesirable in the majority of criminal cases. All will not agree with him even after considering his elaboration of the following points which affect the medical profession. Sometimes a court postpones sentence in order that an opinion on the prisoner's suitability for psychological treatment may first be obtained. Then, having been furnished with medical evidence and advice which favours such treatment, the court occasionally imposes a sentence of imprisonment nevertheless. The result is that the prisoner thinks that he might have escaped prison but for the medical evidence; hostility follows, instead of coöperation. Again it sometimes happens that a defending advocate urges that an accused man requires medical treatment rather than imprisonment; medical witnesses are exploited in support of such a plea in cases which are unsuitable. Here, too, hostility is the natural sequel if imprisonment is imposed. The prisoner tries to obtain preferential treatment on the strength of the medical opinions; when this is refused, he is inclined to attribute his future conduct to medical ineptitude. Alternatively, if the court does not send him to prison, no useful purpose is served by non-effective treatment at a clinic or elsewhere. The Medical Commissioner closes his report with further significant reminders. Abnormal behaviour may be due to group conduct as well as to individual conduct. It is common experience that persons will, as members of a gang, commit offences which they would hesitate to undertake of their own motion. Such cases may more properly be dealt with by change of environment than by prolonged psychological investigation. Secondly the comfortable doctrine of self-expression gives anxiety if it discounts the value of self-control. Criminals are all too ready to avoid reality and to refuse to acknowledge their own fault. The psychologist's examination, after all, may explain criminal conduct but is not meant to excuse it. Lastly he observes that present-day psychotherapy is practised by some who have no medical or psychiatric training. Only medical experts, he reasonably contends, should assess and give evidence on the mental condition of accused persons in relation to their suitability for psychiatric treatment.

WEST CORNWALL MINERS' AND WOMEN'S HOSPITAL, REDRUTH.—Commander Sir Edward Nicholl has cut the first sod of the extension to be built at this hospital. He has contributed £15,000 towards the cost. The number of beds will be increased from 57 to 91.

FUND FOR SPA TREATMENT.—Miss Sophia Gifford Edmonds, London, has given the sum of £500 a year to enable poor persons living outside a radius of fifty miles from the town to obtain treatment at Droitwich Spa. The fund will be known as The Droitwich Brine Fund for the Treatment of Rheumatism. As only a limited number of patients can be accepted under the scheme, participation in it is being offered to certain general hospitals in England and Wales. The founder hopes however that in time other charitably disposed persons will be led to enlarge its scope.

THE LANCET

LONDON: SATURDAY, MAY 8, 1937

ON CROWNING THE KING

THE KING, "the fountain of honour," has honour bestowed on him by his people only once—at coronation. At other times he receives their gifts of honour as a tribute to the Crown. The ceremony of the Coronation serves two purposes: it brings the person of the king within range, as it were, by doing something to him, and its traditional elaboration makes the act of more than local or topical significance. By following custom we bridge the generations and lift the immediate occasion out of the present, making it—and ourselves—a part of a timeless, age-long, and therefore solid relation between the Ruler, the Head of the Family, and his people. The ceremony itself satisfies the desire to express something of the mystical reverence which lies deep—often deep hidden—in the human heart. However modern our outlook, however little ceremony may mean to us as individuals, its value in public life cannot be denied. It helps the separate individuals in the community to identify themselves with one another by adopting the same attitude to the Ruler. The sense of relationship to other members of the community gained by making the Ruler a common ideal, is one of the factors which stabilise an empire, however distant are its constituent parts. The maintenance of this common ideal cannot be achieved without effort on the part of both ruler and peoples. The ruler on his side must not be merely a remote figure-head, nor may he fall below the ideal standard the people have set for themselves. The model must be both worthy and capable of being copied—i.e., it must be "human." The people for their part must resist a tendency, which may at first seem harmless, to over-idealise or to exalt to deistic proportions those who hold positions of authority. This tendency is a legacy from childhood and is accompanied by another relic of our primitive nursery impulses—a wish to control the behaviour of the being thus exalted. Doctors have a special opportunity for observation of this in daily life: when a person holds this or that parent too high above criticism he regards himself as specially fitted to manage the affairs of the person he adores. So it is in the constitutional relationship—groups which claim to possess a superior kind of loyalty or a more mystical understanding of the true nature of the Royal heart and mind also claim as of right to interpret the Royal will. Such an attitude is dangerous to constitutional development because its arrogance is concealed behind a mask of apparently generous intentions. We have to go back to the nursery in order to understand the basis of the monarchical form of government, which draws its strength from a displacement of the ties of the family—the group in which we begin our social experience—to the central government of our national life. In the much used phrase, "the King is the Father of his People," there is a profound psychological truth. The wish to reanimate in the national life the intense experience of veneration, once felt in nursery life towards the father, exerts a powerful influence on our social institutions.

The smooth flow of corporate life, which has for the most part characterised British history in recent centuries, obscures the strong forces which lie beneath the surface. Priding ourselves, rightly perhaps, on bringing to public life a sturdy common sense, we tend to take institutions for granted, unless either they begin to fail in their purpose or an external event calls them to our notice. We have moreover found a means of preserving an equilibrium in our relations to the governing authority which other nations do not so fully employ. The political part of our emotional life is split into two: one portion is reserved for the Crown and all that it implies, the other for the Cabinet. Thus even acute discontent, when it arises, does not destroy the whole of the sovereign power but only a replaceable portion of it—we only turn out a party government. The parliamentary system is safe so long as it does not absorb the whole of the political sentiment of the people or receive the full force of popular opposition; the throne is safe so long as the cabinet is strong enough to be worth attacking. This view may help to resolve some of the difficulties of the jurists and philosophers of the past and bring them into a new alignment. Blackstone examined the royal prerogative which invests "our Sovereign Lord, thus all-perfect and immortal, in his Kingly capacity," Paley remarked that these formidable prerogatives dwindle into mere ceremonies, while Bagehot, coming nearer to our modern views, described the limits of royal power and explained its function in terms of loyalty.

In our Empire the KING is above politics, and we have in the last century been favoured with a Royal House which has understood its responsibility as that of exacting only loyalty as tribute and giving life-long service in return. A constitutional monarch is like the father of a *grown-up* family; his power depends on his behaviour. So long as that is determined by consideration of the common good he receives the devotion of his children based on their respect for one who gives them all an equal share of his good regard. The British preserve a human relationship and a family feeling for their Ruler, neither debasing him into a puppet nor turning him into a god. King GEORGE VI is the head of our family and in crowning him we honour him, our constitution, and ourselves.

OBSTETRICS IN GENERAL PRACTICE

THE Ministry of Health's report on maternal mortality is more revolutionary than may appear at first sight. It says that many women die unnecessarily through childbirth, and that if they are to be saved the first need is better midwifery. It makes a recommendation that in blunt words means this—that public authorities shall no longer pay a doctor to attend a confinement unless he is known to have special ability for the task. At present when a midwife wants medical help she has to call in whatever doctor the patient chooses; and the local authority pays. The Ministry is evidently going to propose that in future the midwife shall only be able to call a doctor whose skill in midwifery is recognised in the neighbourhood. If local authorities are to pay for pipers they will henceforth have a say in choosing them, and will ask that their tune shall harmonise with what is being played by the rest of their orchestra, consisting of midwives, consultants, and hospital officers. The new Midwives Act and the new training rules of the C.M.B. will secure greater efficiency from midwives by providing better trained, better organised, and fully employed women. The local authorities under whom they work will want to strengthen the vital link between midwife and consultant by selecting from the available local talent a limited number of the best qualified practitioners to come to their aid when required. In other words, they will no longer accept a registrable medical qualification as sufficient evidence that a man is competent to practise difficult midwifery. The significance of this proposal needs no underlining. It must be recognised as a big step towards the removal of midwifery from ordinary general practice.

What has led the Ministry's investigators to favour such a step? From the summary appearing on p. 1125 it will be seen that they made a laborious inquiry into all the maternal deaths in certain areas during 1934 and found much to criticise in the conduct of pregnancy, labour, and the puerperium. Their observations are consistent with the results of the analysis of nearly 6000 maternal deaths made by the Departmental Committee in 1932, when it was estimated that in nearly half the cases there was a "primary avoidable factor." But the study of failures does not reveal the whole truth, as the Ministry's medical officers would be the first to admit. An examination of 700 fatal cases of appendicitis would probably suggest that everyone with a pain in the stomach should at once see a surgeon; yet this would be nonsense. The evidence of failure provided by these surveys is *supporting* evidence, but is not in itself enough. The true argument in favour of taking midwifery out of ordinary general practice is this. The birth-rate is falling; more and more women are being delivered in hospital or by midwives alone; the number of general practitioners is increasing, and so is the volume of their work. The result is that many practitioners deliver very few women in the year, and some are called only to abnormal confinements. Many of the younger men, although they feel obliged to undertake such work, have had too little experience of midwifery to be competent in emergencies that may tax the most skilful—and these emergencies are often encountered in the very difficult circumstances of poor homes. The medical student's instruction—however much is squeezed into it—does not turn out an obstetrician but only a man capable of becoming one. Unless he has special post-graduate training or a long experience of unselected cases, he cannot be regarded as the proper person to go to the rescue of a midwife. Occasional obstetrics is even more dangerous than occasional motoring, and the conduct of labour should be undertaken only by those who are genuinely interested in it and willing to give it time and thought.

These arguments are familiar enough, and there are good answers to them. The British Medical Association's scheme for a maternity service is based on every woman having her own doctor to attend her before, during, and after confinement, and its exponents emphasise the value of this continuity of care. Where, as often happens, a practitioner takes a pride in his midwifery, and does not allow other duties to deflect him from it, he can certainly offer his patient a service of the very best. But it has clearly become impossible for every general practitioner to take this attitude or give this service, and many would be thankful if they were no longer expected to practise what they regard as a specialty. Moreover, those who do in fact want to do such work might welcome the withdrawal of unenthusiastic competitors. Be this as it may, what is immediately to be expected is that the Ministry will instruct each local authority to consult with the medical profession in its district and prepare a panel of those practitioners who are best qualified to assist midwives in case of need. From this no great flight of imagination is required to foresee a day when post-graduate diplomas will be demanded as a condition of obstetric practice; and the Ministry's present report marks a turning-point which it is well at least to recognise.

THE VOLUNTARY HOSPITALS: GOODWILL AND FINANCE

THE recommendations of the commission on the voluntary hospitals summarised on p. 1123 deserve careful study. The commissioners show a full understanding of the spirit that inspires the traditional system of hospital administration in this country, and the value of the freedom associated with voluntary service. But they have reached the deliberate conclusion that a limitation of independence is essential to the continued existence and expansion of voluntary hospitals, and that methods must be devised whereby coöperation among the voluntary hospitals themselves and between voluntary and municipal hospitals can be promoted. An important recommendation designed to this end is the division of the whole country into separate regions based on the present regional organisation of the British Hospitals Association. The regional councils appointed to coördinate the services rendered would have no coercive or compulsory powers, but would receive day-to-day information about empty beds, and so facilitate the admission of patients. The functions of regional councils would include also the maintenance and direction of an ambulance service; the arrangement for the transfer of patients no longer acutely ill to "auxiliary hospitals"; and, perhaps most importantly, the strengthening of the hospitals' finances. Following logically enough the general conclusion that if the total annual income of the voluntary hospitals could be distributed in accordance with their individual needs their financial position would not be unsatisfactory, it is suggested that in course of time regional funds should be created on lines similar to that of King Edward's Hospital Fund for London. The idea is that such funds would create new sources of support, and that the education of donors to contribute to hospitals as a whole would ensure a better allocation of their contributions than results at present from gifts to the particular institution of their choice. If the regional councils acquired enough influence they would be able to improve or close down inadequate and inefficient institutions; new hospitals would not be built nor would old ones be extended without their approval. And the anomalies whereby there is overlapping of effort in one district while others have a defective hospital service would be gradually eliminated.

The question arises whether the voluntary hospital income can be spread over the voluntary hospital system without substantial diminution of the total sum available. It may be that some of those hospitals which are in a better financial position than others are earning it by the value of their work; and it may be that some at least of those in financial stress could gain more support if the value of the service they offer to their public were greater. It is curious that in a report which touches on almost every aspect of hospital activity, and in remarkable detail, there is little reference to variation in the quality of the service given in different voluntary hospitals. The fact that for the most part this service is of a very high order should not blind us to a second fact that almost everywhere it is capable of improvement, and in some places of considerable improvement. The word service is used in its broadest connotation, to include not only medicines and surgery and nursing, food and lodging, light and air, it includes also contact of patients with resident staff and honorary staff; contact of relations with both and with sisters of wards, and contact of hospital doctors with general practitioners; conditions of admission and discharge of patients, and of consultations for out-patients; and finally the proportions in which zeal and discretion are mingled in the almoner's and secretary's departments. It must be obvious to everyone that quality of service is not the only factor in determining support, if only because it is so difficult for the laity to discriminate between its grades. Other factors include location, prosperity of the district, and the luck which sometimes brings rich patrons to charities irrespective of their special needs. The commissioners themselves point out that the public are not yet educated to give as readily to a hospital service as to a particular hospital. Will they ever be? Certainly now, and perhaps always, there are many who would sooner give one pound to a poor person who is ill than a pound or something less to "the sick poor." Local patriotism is a strong incentive to personal service. Anything which weakens interest in the local hospital for its own sake will go far to undermine the present strength of the voluntary hospital system; and a so-called parochial interest may well bring stronger financial support to the voluntary system than a regional or cosmopolitan attitude.

If we remain less hopeful than the commissioners that their solutions are necessarily the best ones we must commend their laborious study of the problem. Though the conclusions they have reached are simply and even dogmatically stated, it is obvious that the considerations on which these conclusions are based have been carefully weighed, and that this report will take a worthy place in the series of documents issued during the last 20 years on different aspects of the services and responsibilities of voluntary hospitals. The peculiar merit, to which attention is drawn in its pages, is that it is a drive towards reform not from without but from within, and that for this reason if for no other, it is the more likely to be implemented.

THE FUTURE OF TUBERCULOSIS

DR. D'ARCY HART'S Milroy lectures, concluded in our present issue, illustrate the change in attitude that is coming over younger physicians. The facts on which he builds his argument are for the most part widely known. We are most of us aware that there has been an ominous lag in the decline of tuberculosis mortality among young adults, especially females and especially in depressed areas. Despite the distribution of diagnostic centres throughout the country in the form of tuberculosis dispensaries, the proportion of cases

diagnosed early has shown little increase in the last twenty or thirty years. The prognosis per group has also been little affected; the one great therapeutic advance, collapse therapy, is applicable only to a small proportion of cases (10 per cent. in the recent London County Council series) although many advanced cases must have passed through a stage, before diagnosis, when it might have altered the course of their lives.

Hence it is evident that, however gratifying the drop in the general incidence of tuberculosis, there is still a long way to go. Delay by the patient in seeking advice is obviously the cause of much late diagnosis, and social factors such as fear of unemployment play a part in causing this delay. Progressive public health authorities are encouraging patients to present themselves for dispensary examination as soon as suggestive symptoms appear, and by facilitating the use of X rays they are ensuring that the examination will be as effective as possible in detecting disease even in its earliest clinical stages. But it is here that Dr. HART steps in with arguments which cut at the roots of the present organisation, however efficiently run. He points out that radiological signs appear considerably in advance of symptoms and that this being so it is illogical, in attempting to ensure early diagnosis, to wait for the patient to take the initiative after the appearance of symptoms. The alternative, he suggests, is the periodic health examination of selected groups of people, especially young adults. This examination would be based primarily on radiography, although in groups with low tuberculosis incidence, expense might be saved by preliminary Mantoux testing. This scheme is theoretically no more revolutionary than the periodical inspection of the teeth of school-children, but progress along the lines suggested would lead eventually to "a comprehensive health service that would include the detection of pulmonary tuberculosis as merely one of its important functions." Objections would no doubt be many and varied. At Dr. HART'S estimate the cost of the tuberculosis scheme, which is at present rather over two shillings per head, would increase and require the expenditure of at least double this amount on diagnosis alone. Other objections include the danger of inducing a tuberculosis phobia and also the difficulty of persuading a symptomless patient to accept the stigma of sanatorium treatment. Although presumably this stigma would diminish if really early diagnosis and treatment were to make complete recovery the rule, the physicians administering such a scheme would have difficulty in inducing a symptomless patient to undergo a course of treatment if it involved the risk of losing his job. Their task would be made still more onerous by their knowledge that many such cases recover without ever knowing they have been ill.

Nevertheless the conclusion to be drawn from Dr. HART'S lectures is that although it has many excellent features our present tuberculosis scheme does not strike sufficiently near the root of the problem to satisfy the demands of the future. The radical attitude he represents is associated, moreover, with a growing realisation that preventive medicine cannot make much headway in face of bad social conditions. At present it is all too clear that barely adequate nutrition is often the lot both of the tuberculous patient and of other members of his family just at a time when abundant food is essential to their well-being. And those who follow Dr. HART'S close reasoning must conclude that, if common sense is to be applied to tuberculosis, society must do more to tip the balance in favour of the patient rather than in favour of the tubercle bacillus.

THE SITUATION IN SPAIN

MUCH is said nowadays about the way in which rapid communications have diminished distances. Yet the civil war in Spain is still so far away as to be barely credible. The feeling that these events are only newspaper stories must be the chief explanation of our comparative failure to respond to the desperate needs of people living only a few days' sail to southward of us. In the past week or two something has been done to bring home the realities of the situation in the Basque provinces. Serious attempts are being made to remove from Bilbao women and children whose danger is evident from the fate of Guernica, and we understand that money for this purpose will be gratefully received by the National Joint Committee for Spanish Relief, 35, Marsham-street, London, S.W.1. Associated with the committee in its general work in Spain are the Save the Children Fund (20, Gordon-square, W.C.1) and the Friends' Service Council (Friends House, Euston-road, N.W.1), both of which, despite deficient funds, are doing much to dispel the idea that the English have ceased to care.

An illustrated pamphlet called "Children in Spain To-day" reaches us from the Committee Against Malnutrition, with a foreword signed, among others, by Dame Janet Campbell, Miss Harriette Chick, and Miss Edith Pye. It shows that already in January the number of refugees in the Government area exceeded a million, or 10 per cent. of the population, and it adds that "the public conscience in western countries may have to prepare itself for a great relief effort in the near future, if the misery of a famine upon our European continent—however short its duration and restricted its scope—is not to be repeated in our time." There is no collapse of health and welfare services, however, on the Government side of the lines; indeed they have expanded remarkably. Hence whatever help is given for the prevention or relief of distress is likely to be used effectively.

Finally—which directly concerns the medical profession and its allies—there is a constant demand for medical and surgical equipment and supplies. The goodwill of manufacturers is now being asked for a scheme by which workpeople engaged in making such things may work overtime and thus earn credit with their employers for organisations sending aid to Spain. It is believed that a large proportion of employees would gladly give a few hours a week to such voluntary work, and since the firms concerned would secure the orders for equipment they would gain rather than lose by according the facilities asked for. We hope that many firms may be willing to give the scheme sympathetic consideration. It is planned by Voluntary Industrial Aid for Spain (32, Great Ormond-street, W.C.1), which is already applying the principle to the manufacture of motor-cycle sidecar ambulances. These have proved their worth in mountainous regions where other vehicles cannot reach the wounded.

ANNOTATIONS

ARTHROGRAPHY IN CONGENITAL DISLOCATION OF THE HIP

DIFFICULTIES in treatment of congenital dislocation of the hip-joint are due as much to peculiarities in the shape and attachments of the capsule as to mis-shape of the femoral head. Jacques Leveuf and Pierre Bertrand [1] claim that arthrography provides a valuable aid in assessing the chances of success of closed reduction. The shadow picture obtained in congenital hip disease defines the capsular cavity as consisting of two parts: a cephalic, in relation to the femoral head and the dorsum ilii, and an acetabular. The communication between the two parts may (1) be free, (2) a narrow isthmus, and (3) obliterated by adhesions. In the first group reduction is likely to be easy, and retention of the hip in the reduced position may present little difficulty. When communication between the two parts of the capsular cavity is evidently much narrowed, Leveuf and Bertrand regard reduction by manipulation as a very traumatic procedure liable to cause damage and not worth attempting; open reduction is then indicated. Arthrography also explains the unsatisfactory clinical results sometimes obtained in cases where the radiographic report on the reduction has been encouraging. Adhesions to the dorsum ilii prevent the capsule from slipping down with the femoral head. The arthrograph may show a fold of capsule intervening between the joint surfaces, and such a joint will necessarily be unstable.

A variety of substances have been suggested as suitable for injection into joints. Of these Leveuf and Bertrand prefer two—Diagnorénol, in a 35 per cent. solution, and Ténébryl, in a 30 per cent. solution. Some authors have suggested preliminary injection of a small quantity of air, but Leveuf and Bertrand have found this unnecessary. The procedure is, however, distinctly painful, and general anæsthesia is usually advisable in young children. In others, 2 c.cm. of novocain are injected before the contrast solution by means of a 10 c.cm. syringe and a lumbar puncture needle. The hip to be injected is raised on a cushion and the limb held by an assistant who rotates it as necessary. The needle is entered flush with the anterior surface of the great trochanter just below its summit. It is pushed along the neck of the femur till stopped by the projection of the head. When the head is obviously anteverted it may be simpler to aim directly at the head of the bone, and not to use the trochanter and the neck as a guide to it. The contrast solution is injected five minutes after the novocain. About 10 c.cm. is usually necessary for a luxated hip, although in a normal joint 2 c.cm. is sufficient. The radiogram is taken as soon as possible, for absorption of the solution is very rapid, and after 15 minutes no shadow may be obtained. A slight circumduction of the joint aids spread of the solution. Where a complete block occurs between the capitular and acetabular parts of the capsular cavity the solution will remain localised around the head. Constriction of the capsule between the acetabular rim and the psoas muscle, its contraction by adhesions, or its obstruction by the round ligament produce the narrowing of the isthmus mentioned above. The longer the condition has existed, the more definite the capsular deformities are likely to be; this corresponds with the recognised difficulties in reduction in children seen after the first two or three years of age. A complete and stable reduction will show a crescentic shadow out-lining the head of the bone and without extension on to the dorsum ilii.

[1] *Pr. méd.* March 20th, 1937, p. 437.

THE ERADICATION OF OPHTHALMIA

THE Elizabethan poor-law broke down badly with the poverty that prevailed in England after the Napoleonic wars. Pauperisation of large masses of people threatened to become the established principle in the running of industry and particularly of agriculture, for such monetary grants as were received in outdoor relief tended to be taken by employers as part of the wages of their employees; indeed, some farmers made it their practice only to employ those who were on relief. In an attempt to break this vicious circle the Poor Law Act of 1834 was introduced, with its radical change of emphasis from outdoor to indoor relief. Under the new dispensation whole families were transferred to the workhouses and care was taken not to make these comfortable. The inmates were herded together—the old and the young, the sick and the healthy, the desperate and the merely simple. What it all meant in terms of human misery may be guessed from the columns of this journal at the middle of last century: the example reproduced on p. 1145 is sufficiently shocking. And readers may remember "Oliver Twist, or the Parish Boy's Progress," which appeared in 1837.

Not the least of the problems that emerged was the wholesale infection of children at workhouses with trachoma and gonorrhœal ophthalmia. The difficulties did not lessen to any extent when poor-law schools came to be built to replace the private contractors' schools, which the guardians used at first because they were cheapest. When the poor-law schools ultimately did come in the 'fifties no provision was made for more than the most elementary treatment of the sick child. These institutions, which later came to be known as barrack schools, were almost ideally planned for the propagation of infective conditions among the very large number of children herded in them, and the spread of ophthalmia was but part of the larger problem of the spread of infectious diseases in general. The guardians were not altogether oblivious to their duties; when an epidemic broke out costly steps were taken to check it. But a feature of these epidemics was the advice given with monotonous frequency by every ophthalmologist called in, and declined with equally monotonous persistence by the guardians—the establishment of sufficient facilities to isolate every infected child within the schools or, better still, in some central outside institution where they could be kept under school conditions until every sign of infection had disappeared. A tentative experiment by Nettleship in 1873 fully justified such a procedure, but the cost of erecting such a central hospital school was considered a final objection, just as the cost of erecting schools under the authority of the guardians instead of sending children to the contractors' establishment had been held as an equally final objection a generation earlier. In the meantime the toll of complete or partial blindness kept on mounting steadily in the "good years," hectically in the "bad years." No poor-law school was ever completely free from ophthalmia, and in some almost all the children were affected. Persistent agitation against this state of affairs ultimately led to the setting up in 1894 of a departmental committee to investigate the whole

working of the Poor Law Act as it affected children. The labours of that committee led to a complete change in poor-law education and a central ophthalmic isolation hospital school came at last to be built when the Metropolitan Asylums Board was charged with the responsibility of looking after the physically defective children in poor-law schools. The central hospital school, White Oak Hospital, Swanley, was opened in 1903, and a year later the sister institution, Highwood Hospital at Brentwood. Trachoma quickly ceased to be a problem of importance: as against 292 cases admitted in 1903, 10 were admitted last year, despite the fact that the hospital draws nowadays not only on what is left of the poor-law school services, but also on the whole of the elementary schools under the London County Council. Indeed, trachoma was stamped out with surprising ease once the proper machinery was established, and White Oak Hospital is no longer a school devoted exclusively or mainly to trachoma, but has become a highly specialised institute for dealing with chronic eye diseases in children.

The lesson that Mr. Arnold Sorsby emphasises in his review of the origin and development of White Oak Hospital,[1] which he serves as visiting ophthalmologist, is the one to which the Board of Education drew attention in 1929—namely, that there is still a dead weight of external eye conditions in children all over the country. It must be admitted that London, with its rate of 4·9 per 1000 as against 14·7 for the country as a whole, has reason to be satisfied with the achievement of its hospital school institution, and it is regrettable that there is only one such institution in the whole of the country. The change in the character of White Oak Hospital leaves one wondering not so much that the problem which the hospital has solved was ever allowed to arise, but that the road to its eradication should have been so full of difficulties and obstruction. Like most successful public health measures, the history of the hospital illustrates not so much the "inevitability of gradualness" as the desperate gradualness of the inevitable.

ABNORMALITIES OF SWEATING

ABNORMALITIES of sweating may be the result of interference in the nervous supply, of alteration in the sweat glands themselves, or, as in the case recently quoted by Berkman and Horton, at a staff meeting of the Mayo Clinic,[2] of hysteria. Several cases have been quoted by Wilson [3] and another by Uprus, Gaylor, and Carmichael,[4] in which excessive sweating has occurred on certain parts of the face in association with salivation, when the normal sympathetic nervous supply has been interfered with as a result of previous trauma. Cases of auriculo-temporal syndrome and "crocodile tears" show phenomena of a similar type. Wilson suggests that the condition is caused by a hyperactive state of the sweat glands, as the result of removal of inhibition resulting from the degeneration of their sympathetic nerve-supply. In the case presented by Mogens Fog [5] the lesion was one of the glands. His patient, following a prolonged attack of paratyphoid fever, was unable to sweat when exposed to great heat, or after prolonged muscular exercise, such as would produce profuse sweating in a normal individual. He complained of intense discomfort, palpitation, and burning and flushing of his skin, particularly of his face. Microscopic examination of his skin showed considerable destruction of his sweat glands. Mogens Fog suggests that these phenomena are the result of the body's attempt to promote heat loss by radiation by extreme dilatation of the skin vessels, in the absence of the usual elimination by sweat formation and evaporation. The most interesting feature of Berkman and Horton's case of hysteria associated with absence of sweating is the unconscious resistance on the part of the patient to any muscular effort which might cause a rise in body temperature and so promote sweating; when the nature of her disorder was explained to the patient and this resistance was overcome normal sweating resulted. Uprus, Gaylor, and Carmichael were of the opinion that the immersion method of warming the subject was a more certain and satisfactory method of raising the blood temperature and promoting sweating than the dry air-bath method used by Berkman and Horton. The latter point out that their patient, although showing, in their opinion, signs of sympathetic dysfunction, did not present the usual features of heat allergy, such as the urticaria usually complained of, and they do not mention any history of intense flushing or of dry scaly skin, which were both such marked features in Mogens Fog's case. It is unfortunate that they were not able to test any of the other systems under sympathetic nervous control.

[1] Ann. Rep. London County Council for 1935. London, 1937. Vol. IV. Part III. Pp. 69.
[2] Berkman, J. M., and Horton, B. T. (1937) *Proc. Mayo Clin.* **12**, 161.
[3] Wilson, W. C. (1936) *Clinical Science*, **2**, 273.
[4] Uprus, V., Gaylor, J. B., and Carmichael, E. A. (1934) *Brain*, **57**, 443.
[5] Fog, M. (1936) *Amer. J. med. Ass.* **107**, 2040.

PSITTACOSIS

IN 1929 the Minister of Health issued a memorandum calling attention to the existence of psittacosis in England both in birds and in man, and asking that material from suspected cases should be sent to the laboratory of the Ministry for investigation. A new report has now been issued [1] in which the methods for the laboratory diagnosis of the disease are described in such detail that with its aid it ought to be possible to investigate cases of psittacosis in any properly equipped bacteriological department. The Ministry obviously now consider that diagnostic methods have reached a state when they can be relied on for routine use. The new report describes the precautions necessary in handling infectious material and stresses the risks of infection from experimental material. The morbid anatomy of the disease in infected birds is described. Findings suggestive of psittacosis are: (1) fibrinous pericardial effusion; (2) greatly enlarged spleen, sometimes with necrotic nodules; and (3) a pale or yellow liver with necrotic or hæmorrhagic spots. It is recommended that direct smears should be made from obviously affected organs and from the lungs and heart blood. The smears are stained with Giemsa or by Bedson and Bland's or Lépine's modification of Casteñada's method. If the smears are clearly positive for virus bodies no further procedures are necessary in routine diagnosis. If they are negative or doubtful the ground-up tissues are injected intraperitoneally into mice. Mice injected with virulent material usually die in 5 to 30 days. The post-mortem appearances vary somewhat according to the time taken by the mice to die. If death takes place three or more days after injection the peritoneal exudate is thick and fibrinous and virus bodies can generally be demonstrated in the macrophage cells of the exudate. In man the sputum, blood, and pleural exudate from the living patient, particularly during the early stages of the disease, or such post-mortem material

[1] Laboratory Diagnosis of Psittacosis. *Rep. publ. Hlth med. Subj. Lond.*, No. 80. London: H.M. Stationery Office. 1937. Pp. 11. 6*d*.

as the spleen, affected lung, &c., should be examined both directly and after passage through mice. In all psittacosis infection, whether of birds, rodents, or man, the essential change is the invasion and destruction of the reticulo-endothelial cells, and special attention should therefore be given to these cells in the search for virus bodies. A good coloured plate shows the characteristic appearances of these bodies. The concluding paragraphs of the report discuss the special problem of psittacosis in budgerigars (love-birds). The disease in these birds is less severe than in ordinary parrots and parakeets, and instead of dying they may survive to become carriers of the virus. Further investigation is required as to the extent of infection among the budgerigar flocks of this country and the Ministry asks pathologists to endeavour to obtain more information on the matter.

SERUM TREATMENT OF PNEUMONIA

THE treatment of lobar pneumonia with specific antibacterial sera began in America soon after the discovery of the serological types of the pneumococcus in 1913, and later it received a decided fillip from Felton's discovery of a practical process for the refinement and concentration of antisera to Types I and II pneumococci. Following the good reports of Cole, Park, Bullowa, Cecil, Finland, and others, several of the United States, notably Massachusetts and New York, have begun a "pneumonia service" to encourage the serum treatment of lobar pneumonia in smaller urban and rural districts—a plan which may be recommended especially to the industrial areas in the midlands and north of England and to Scotland where pneumonia is more common than it is in the south. Meanwhile the pioneers forge ahead. The division of the heterogeneous Group IV pneumococci into some 29 specific types by Cooper and her co-workers has enabled the clinician to find out the relative incidences of these types as causal organisms of lobar pneumonia and the serologist to prepare antisera to the more common of them. In particular, the treatment of lobar pneumonia due to Types V, VII, VIII, and XIV pneumococci has been under investigation. For example, Bullowa and Wilcox [1] have collected 249 cases of Type V lobar pneumonia (or 7·5 per cent. of the total pneumonias) at the Harlem Hospital, New York, in the past seven years: in comparison with a mortality-rate of 20·8 per cent. in an untreated series of 163, there were only 5 deaths (7·5 per cent.) among 67 treated with serum. Similarly Finland and co-workers,[2] at the City Hospital, Boston, isolated Type VII pneumococcus from 195 patients in seven years, representing 5·5 per cent. of all the cases from which specifically typed pneumococci were obtained during this period. Of these, 160 were suffering from pneumonia and it is significant that whereas Type I and II infections are almost constantly lobar in type, about one-fifth of the Type VII cases were classified as broncho-pneumonia. In a series of 30 cases of Type VII lobar pneumonia, rapid and permanent clinical improvement followed treatment with concentrated type-specific antiserum. Finland and Tilghman [3] have reported similar results in a small series of Type V lobar pneumonia. Nor, in the pursuit of new types, has Type I been forgotten, as may be seen from the paper [4] Cecil read to the International Micro-biological Congress last summer. The illness, he says, from being a serious exhausting infection of 7–8 days' duration can be reduced by *early* serum treatment almost to the status of an influenzal attack; in other words, it is dramatically aborted. Spread of infection is prevented, bacteriæmia is checked, complications are inhibited, and the death-rate is cut to approximately one-sixth of the standard mortality for Type I pneumonia. Meanwhile, despite the truth of Cecil's remark that reports on serotherapy of lobar pneumonia have been without exception favourable, little enthusiasm for this new line of treatment is being shown in this country. We were glad, therefore, to be able to publish a few weeks ago the observations made by Drs. Langley, Mackay, and Stent [5] on Types I and II pneumococcal pneumonias treated with specific sera at the Hope Hospital, Salford. Though some of their conclusions are open to argument, it is clear that the work they are doing is of real value.

[1] Bullowa, J. G. M., and Wilcox, C. (1936) *J. clin. Invest.* **15**, 711.
[2] Finland, M., Ruegsegger, J. M., Dowling, H. F., and Tilghman, R. C. (1937) *Amer. J. med. Sci.* **193**, 48, 59.
[3] Finland, M., and Tilghman, R. C. (1936) *New Engl. J. med.* **215**, 1211.
[4] Cecil, R. L. (1937) *J. Amer. med. Ass.* **108**, 689.

THE SEX HORMONES IN ECLAMPSIA

THE work of O. W. Smith and G. Van S. Smith on the secretion of sex hormones in eclampsia and pre-eclampsia has already been annotated in these columns.[6] These authors reported that the blood, urine, and placentas of eclamptic subjects contained excessive amounts of a gonadotropic hormone, and, less constantly, a paucity of œstrogenic hormones. Their experimental results indicated that the extra gonadotropic hormone was the same luteinising type (prolan B) that is found in normal pregnancy; and that it was derived from the placenta. The methods at present available for the assay of sex hormones are far from satisfactory, but if the above observations are correct it becomes important to find out whether over-secretion of prolan B is responsible, partly or wholly, for eclampsia, or whether it is merely a secondary response to some other dislocation of endocrine balance—analogous, for instance, to the excessive output of prolan A which is seen at the menopause.

With an equation involving so many inter-related variables as the reproductive cycle it is no easy task to distinguish between cause and effect. The fact that toxæmia is especially common in multiple pregnancy and in cases of hydatidiform mole suggests that increased secretion of prolan B may be of primary rather than secondary import. But the inference is not conclusive and it is more to the point to ask whether, when eclampsia complicates an otherwise normal pregnancy, hypersecretion of prolan precedes or merely accompanies the clinical symptoms. Preliminary observations by Smith and Smith suggested that over-secretion may antedate symptoms by several weeks, and they now [7] bring forward further evidence that bears out this suggestion. They have collected serial samples of blood and urine throughout pregnancy in a series of 27 pregnant women, and estimated the prolan and œstrin content of the samples. Their series includes 11 diabetic subjects, who were selected because the incidence of toxæmia is high in diabetes. Of their 27 patients, 6 developed pre-eclampsia, 4 of these being diabetics; 17, including 5 diabetics, remained free from symptoms; while the remaining 4 pregnancies were neither normal nor frankly toxæmic. In the toxæmic patients high prolan and low œstrin figures were observed, and it seems clear that the rise in serum

[5] Langley, G. F., Mackay, W., and Stent, L., *Lancet*, April 3rd, 1937, p. 795.
[6] *Lancet*, 1935, **2**, 564.
[7] *Amer. J. Obstet. Gynec.*, 1937, **33**, 365.

prolan occurs about six weeks before the appearance of clinical symptoms.

This strengthens the opinion that over-production of prolan plays some part in causing eclampsia. How it does so is uncertain. There appears to be a reciprocal relationship between the prolan-B and œstrin content of the plasma, and œstrin deficiency may be the important factor. It does not seem likely that over-secretion of prolan is the only cause of toxæmia, for eclamptic symptoms may be wholly lacking in cases of chorion carcinoma, where the output of prolan is enormous. The work of Smith and Smith has not, therefore, solved the problem of eclampsia, but one may hope that further research along these lines may eventually disclose the secret, and lead to rational, instead of empirical, treatment of these tragic illnesses.

LONDON STARLINGS

IT has been shown that the genitalia of many birds, mammals, reptiles, amphibia, and fish may be induced to anticipate their normal time of development by extending the daylight available in winter and early spring by artificial illumination; lengthening daylight seems certainly to be an important factor in spring breeding, and it is possible that man had a more definite reproductive reason than he has now before he learned to equalise his days with artificial light. There is also some evidence, not altogether consistent, that maturation may be hurried by disturbance and curtailing the usual hours of sleep. Prof. William Rowan now finds [1] that the testes and ovaries of starlings from the huge flocks which come into London every night to roost are more forward in development than those of country birds, and suggests that this is due to their being kept on the fidget by the noise of traffic; the light at the roosting places he finds to be well below the effective threshold. The night noises of London are indeed dreadful, but we doubt whether he has made out his case. Birds often choose to put their nests in noisy places by railway lines and busy high roads, so that it is unlikely that they find such conditions disturbing. Prof. Rowan also does not state the origin of his country controls, whether they came from a big country roost or from sporadic birds. The former is obviously necessary since the dormitories in woods and plantations far from towns are by no means altogether quiet at night. Perhaps it is not the noise of the vehicles but the aggregation of so many birds together that stimulates sex.

DIVINYL ETHER

WHATEVER may be its merits or demerits as an anæsthetic for long operations divinyl ether is certainly a most valuable agent when a short but profound narcosis is required. It is not uncomfortable or irritating to inhale, and the patient recovers quickly and generally without distress from its effects. Moreover, it has the great practical advantage that it can be administered by very simple means. These and other points are well brought out in a recent review of a series of 2675 administrations.[2] The authors recommend that when more than half an hour's anæsthesia is wanted the ether should be volatilised with oxygen; otherwise they use a simple drop method on a few layers of loosely fluffed gauze. Divinyl ether is of course a potent anæsthetic, the concentration necessary in the blood for production of anæsthesia being even less than that of chloroform. Consequently the drug must be given with due care, and danger is easily introduced if a closed apparatus is employed by means of which too high a percentage of vapour would be rapidly acquired. The wide applicability of divinyl ether is illustrated by the fact that in this series the youngest patient was fifteen months old and the eldest seventy-five years. The authors remark on the freedom from post-anæsthetic pulmonary complications. This, however, would surely be expected from any anæsthetic used for such short periods of time as was divinyl ether on most of the recorded occasions. It is three years since Wesley Bourne of Montreal [3] recorded his satisfaction with divinyl ether in obstetrics, and we would be interested to learn whether it has been tried for that purpose in this country. So simple a method if it proved equally safe might well come to rival gas-and-oxygen in popularity.

THE MARCH OF TIME

MANY of our readers may not know, but their children will tell them, that this is the title of an instructional—or, as it is called technically, a documentary—film which is shown in many picture theatres as a serial. In this film, which consists of several short episodes, the moving picture is used as a newspaper or rather as a magazine. Accompanied by a running commentary it depicts matters of current interest, grave and gay, and it is changed every few weeks. One cannot see some of the episodes dealing with a serious subject without being impressed by the extraordinary, even alarming, power of this new technique in educating and moulding public opinion. The latest edition of this series—No. 11—contains an episode entitled The Conquest of Cancer. The greater part of the film has been made in the United States. Several of the leading American medical authorities on cancer appear, without their names being mentioned, and make brief statements emphasising the fact that cancer is curable, and that many thousands of persons have been cured of cancer because they have sought medical advice sufficiently early. They warn the public against the use of quack cures on which in the United States a large amount of money is being wasted. The scene then shifts to England where Sir Kingsley Wood appears on the film to teach the same lesson. The film has evidently been editorially supervised by responsible medical authorities in America, and it proves that the admittedly difficult task of educating public opinion with regard to cancer can be accomplished effectively and at the same time with tact and restraint. The English portion is not as strictly anonymous as the American; and though no exception can be taken to the discreet reference to distinguished workers made by Sir Kingsley Wood, danger lies in this use of the cinema to advertise individual institutions. It must not be allowed to weaken the self-denying code of anonymity that the medical profession has for very good reasons imposed upon itself.

WE regret to learn of the death at an advanced age of Prof. Bennett May, emeritus professor of surgery at the University of Birmingham.

Queen Mary has appointed Mr. C. B. Goulden surgeon oculist and Mr. Francis Donovan, surgeon dentist, to her household.

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[1] *Nature*, April 17th, 1937, p. 668.

[2] Ravdin, I. S., Eliason, E. L., Coates, G. I., Holloway, T. B., Ferguson, L. K., Gill, A. B., and Cook, T. J., *J. Amer. med. Ass.* April 3rd, 1937, p. 1163.

[3] *Lancet*, 1934, **1**, 566.

SPECIAL ARTICLES

BRITISH HOSPITALS ASSOCIATION

REPORT OF A COMMISSION ON VOLUNTARY HOSPITALS

THE annual conference of the British Hospitals Association appointed on June 1st, 1935, a commission to take into consideration the present position of the voluntary hospitals of the country; to inquire whether in view of recent legislative and social developments it is desirable that any steps should be taken to promote their interests, develop their policy and safeguard their future, and to frame such recommendations as may be thought expedient and acceptable. The members of the Commission were Viscount Sankey (chairman), Alderman Miss Bartleet, Sir Henry Brackenbury, M.D., Alderman Alan Davies, Prof. L. S. Dudgeon, F.R.C.P., Mr. H. L. H. Hill, Col. D. J. Mackintosh, M.B., Miss E. M. Musson, S.R.N., Sir Reginald Poole, Provost A. W. Sheen, M.S., with Mr. R. H. P. Orde as honorary secretary.

After taking a large body of oral and written evidence from representatives of all the associations which could give valuable information, the Commission have issued their report.[1]

The Commission recall the action of the Minister of Health in 1921 in setting up the Cave Committee to "consider the present financial position of the voluntary hospitals and to make recommendations as to any action which should be taken to assist them." The Cave Committee reported that the lack of organisation and coöperation among the voluntary hospitals detracted from their efficiency and caused much avoidable expenditure. These institutions, which should be parts of a connected system, were for the most part units working in isolation or in competition with one another and learning little or nothing from one another's successes or failures. Subject to qualifications concerning the teaching hospitals and special hospitals, the committee saw no reason why arrangements should not be made both for defining the functions of hospitals and for promoting coöperation among them. They accordingly recommended the setting up of a Voluntary Hospitals Commission consisting of up to twelve members nominated by the Minister of Health, the Secretary of State for Scotland, the Joint Committee of the British Red Cross and the Order of St. John of Jerusalem, King Edward's Hospital Fund for London, the British Hospitals Association, the Royal College of Physicians, the Royal College of Surgeons, the British Medical Association, and the Scottish Committee of the British Medical Association; also the formation of local voluntary hospital committees nominated by the Lord-Lieutenants. They hoped that although these bodies were to be established primarily for the purpose of distributing definite sums of money, they would continue to perform their functions after these sums had been exhausted: to collect information, advise on accounts, marshal appeals for funds, act as clearing-houses for patients, and promote the grading and coöperation of hospitals in their areas. They were to have no compulsory powers but would derive authority from their personnel and from their control over the distribution of money grants. Both the commission and the local committees were set up and distributed £500,000 which had been granted them by Parliament. They survived for some time after this money had been spent, but failed to bring about the reforms which the Cave Committee had urged as necessary for the efficiency of the voluntary system. They gradually disappeared—according to the present Commission—because, possibly owing to their method of appointment, they never secured the whole-hearted support of the hospitals; also because in 1921 the efficiency of the voluntary hospitals as a system, and not their individual existence, was at stake, because opinions as to reform differed and because there was no external menace to drive them together. The stimulus of immediate danger to their existence which was absent in 1921 has now, the Commission say, been supplied by the passing of the Local Government Act, 1929, and the advent of the council hospital. To-day the voluntary hospitals are themselves demanding those very reforms which the Cave Committee urged upon them and which they neglected to carry out.

[1] Published by the British Hospitals Association, 12, Grosvenor-crescent, London, S.W.1. Pp. 85. 1s.

THE COMMISSION'S RECOMMENDATIONS

This is the thesis on which the present Commission base their recommendations, of which the principal ones are as follows:—

1. The division of the country into hospital regions.
2. The formation in each region of a Voluntary Hospitals Regional Council to correlate hospital work and needs in the region.
3. The formation of a Voluntary Hospitals Central Council to coördinate the work of the regional councils.
4. The establishment of central and regional offices.
5. The initiation of the above scheme by the British Hospitals Association with the subsequent incorporation of the scheme in the work of the association.
6. The grouping of hospitals in a region round a central hospital.
7. The grading of hospitals into central, district and cottage hospitals.
8. The creation of a regional fund for the benefit of all the hospitals in a region.
9. The payment of the expenses of the new organisations proposed from hospital and regional funds and from government grants.
10. The adoption by all hospitals of a uniform system of accounts.
11. The securing of financial aid for hospitals from the State and from the local authorities.
12. The adoption of improved methods for the collection of funds for hospitals.
13. The setting-up, or development to the full, in all regions of contributory schemes.
14. The making of arrangements by which all the hospital beds in a region can be utilised in the best interests of patients and to the fullest extent.
15. The full provision of auxiliary hospitals to relieve the main hospitals.
16. The undesirability of the establishment of special hospitals and the affiliation—as far as possible—of those at present existing with general hospitals.
17. The establishment of machinery to obviate congestion in some hospitals and empty beds in others.
18. The provision by all hospitals of accommodation for paying patients.
19. The restriction of attendance at out-patient departments of hospitals by adopting certain limitations and the taking of steps to remedy the present inconveniences of departments.
20. The making of appointments to the visiting medical staff of a hospital under the guidance of appropriate experts.
21. The appointment of a member of the visiting medical staff of a hospital to be governed by a formal agreement between such member and the hospital.

22. The payment—with certain qualifications—of the visiting medical staff.

23. In regard to the nursing service: (i) the improvement of the conditions, including higher pay for trained nurses; (ii) the adoption of a higher educational standard for entrants; (iii) the commencement of training in all cases by attendance at Preliminary Training Schools; (iv) the recognition of the position of the matron as an administrative officer and her direct access to committees when matters affecting her department are under consideration; (v) the universal adoption of a pensions scheme.

24. The recognition of the special qualifications required for the chief administrative officer of a hospital.

25. The furtherance of a definite scheme of education in hospital administration.

26. The universal adoption of a pensions scheme for the administrative staff.

27. The provision of the services of a qualified accountant for hospital accounting when required.

28. The consideration of the advisability of separating the collection of funds from administration.

29. The securing of those holding statutory qualifications for some auxiliary services in hospitals and of those specially qualified through a recognised test for certain others.

30. The organisation of the ambulance service in a region by the local authorities and the adoption—with certain exceptions—of a moderate charge to the patient for the service.

31. The recognition of the special requirements of teaching hospitals.

32. The keeping by all hospitals of patients' records on a uniform system of classification; a record department at each regional office.

33. The furtherance by hospitals of research and of "follow-up" methods.

34. The publication by hospitals of annual clinical reports.

35. The adoption of suitable publicity methods for hospitals with formation of a press bureau and the publication of a periodical.

36. The special organisation of the voluntary hospitals in Scotland.

37. The practical recognition by all hospitals of the powers conferred by Section 13 of the Local Government Act, 1929, with full coöperation as regards provision for the public health between voluntary hospitals and local authorities.

FINANCE

The Commission conclude that if the thousand British voluntary hospitals could distribute their total annual income according to their individual needs, their financial position would not be unsatisfactory. They suggest as an ideal plan the pooling of a percentage of the revenue of each hospital, but doubt, however, whether the supporters of voluntary hospitals are yet prepared for so fundamental a change. They therefore recommend as a first step the creation of regional funds on a basis similar to that of King Edward's Hospital Fund for London. Such funds would, they think, possess the double advantage of creating new sources of support and of educating donors to help the hospitals as a whole. A uniform system of accounts would be necessary, but the Commission do not recommend the adoption of the "Revised Uniform System" of the King Edward's Fund, believing that a modification of this system could be devised that would strike a balance between the advantage of having good statistical records and that of simplicity. The Commission find no reason why the State should not contribute grants in aid of the voluntary hospitals. They lay down governing principles for contributory schemes, the establishment and growth of which they welcome. They also favour the establishment of provident schemes for paying patients of moderate means. They consider it to be the duty of voluntary hospitals to provide beds for paying patients of all classes of the community and to give them a free choice of medical attendants, who should receive a separate fee.

VISITING MEDICAL STAFFS

The Commission accept the payment of medical staffs as a general principle, but the suggestion was made to them that there exist three classes of medical staff to which this principle does not apply with the same force—viz., the staffs of teaching hospitals, the staffs of hospitals with a considerable number of pay-beds, and the senior staffs of other large general hospitals. They found some point in this contention when applied to the first two classes. A position on the staff of a hospital with a medical school is, they recognise, undoubtedly a valuable asset; but since there must be a lag of a number of years before the teacher can reap the reward of the time and work which he has given, the general argument for some form of payment therefore still applies to the junior members of the staff. If the State ever makes a special grant to teaching hospitals (as was recommended in the Report of the Scottish Departmental Committee on Health Services last year) some portion should, they think, be assigned to those members of the staff who actually give the clinical instruction. Moreover, in hospitals with a considerable number of pay-beds, the patients in which are liable for the fee of their medical attendants by private arrangement, the medical staff stand to gain a material advantage. This, however, only applies when the staff have a monopoly of attendance on patients in the pay-beds. The Commission do not see that the senior staffs of other large general hospitals derive advantages which would lessen their claim to payment. Prolonged service on the staff of a hospital sometimes has material value, but by no means always, and it is not always the senior members of the staff who are preferred by their fellow practitioners or by the general public in the district.

While, therefore, the Commission agree with the general principle that the medical and surgical staffs should be paid, they think that there might well be exceptions or modifications in these stated directions. They would not expect a universal application of the principle immediately, because the circumstances of individual hospitals and the attitude of many members of their staffs vary so widely. If the principle is right, however, they think that the formidable difficulties in the way should in time be overcome. They suggest that the most satisfactory method may ultimately be found to be a definite part-time honorarium or salary. This must involve a statement of the duties undertaken and an obligation to fulfil them more exactly than is sometimes considered necessary to-day.

THE NURSING SERVICE

Broadly speaking, the recommendations of the Commission for the improvement of the nursing service appear to follow those of THE LANCET Commission on Nursing. The problem of attracting a larger number of good candidates can, the Commission say, only be met by making the conditions of service more attractive. The school-leaving certificate may be a suitable standard of education, though it may not be required of some otherwise suitable applicants. All nurses should begin in a preliminary training school, and central schools should be established in regions. From these schools candidates would pass to recognised hospitals. All possible opportunities should be taken for higher training and qualification. The Commission welcome

the diploma in nursing of certain universities and hope that this development will be extended. Special courses—e.g., in housekeeping and dietetics—should be facilitated. Remuneration should, they say, be higher and all nurses should be enabled to become members of the Federated Superannuation Scheme for nurses and hospital officers. Present hours of duty are considered to be too long, the ideal being a 48-hour week. Until this ideal is attainable, more nurses should be appointed to the relief staff. The ratio of nurses to beds should be at least one member of the nursing staff employed during every 24 hours to every two available beds, excluding nurses in special departments. Every large hospital should have a suitable nurses' home with full amenities; in smaller hospitals separate accommodation should be provided. The ratio of trained nurses to nurses in training should be increased. Small hospitals not recognised as training schools should be staffed by trained nurses with adequate domestic help.

The report contains many other matters of interest, notably discussions of the relationship between voluntary and council hospitals and of the out-patient problem.

MATERNAL MORTALITY

THE TWO REPORTS

LAST week we gave a preliminary account of the Ministry of Health's report[1] on maternal mortality. The investigation was made, it will be remembered, to discover why the maternal mortality-rate of this country has tended to rise while the conditions of living, the health services, and expectation of life have improved. In particular the maternal mortality has been persistently greater in some districts than in others; the investigation has therefore been directed to the conditions in those and in a few control districts. It was made by study of the figures in the Registrar-General's Review and of others relating to those districts extracted by the General Register Office for the investigation; by inquiry into the circumstances of all maternal deaths and abortions in those districts in 1934; and by survey of the maternity services. The local inquiries were made by six medical officers of health, three of whom had special knowledge of maternity services and three of health services in general. They were assisted by Sir Comyns Berkeley in a consultant capacity and by the local medical officers.

The districts visited were mainly those which in the decade 1924-33 had experienced an average puerperal mortality-rate in excess of the arbitrary figure of 5 per 1000 live births. They included the administrative counties of Lancashire, the West Riding, Cumberland and Westmorland, the 22 county districts autonomous for maternity and child welfare work in the West Riding and 14 in Lancashire, the 18 county boroughs of Blackburn, Blackpool, Bolton, Preston, Rochdale, Wigan, Barnsley, Bradford, Dewsbury, Halifax, Huddersfield, Sheffield, Wakefield, Canterbury, Carlisle, Darlington, Lincoln, and Plymouth. In addition, for comparison, visits were paid to seven districts where the average mortality-rate for the decade had been low. These were the administrative county of Lincoln (Kesteven), and the county boroughs of Barrow, Bootle, Liverpool, Portsmouth, West Ham, and Hartlepool.

[1] Report on an Investigation into Maternal Mortality. Ministry of Health. Cmd. 5422. London: H.M. Stationery Office. 1937. Pp. 353. 5s. 6d.

THE STATISTICS OF MATERNAL MORTALITY

The trend of the puerperal mortality in England and Wales has been slightly upward during the past ten years (Fig. 1), and the report points out that the changes in classification of deaths have not been such as to affect this conclusion. It is possible that increased accuracy of certification may have contributed but this factor cannot be assessed. A stationary or upward trend is also shown by the mortality-rates in other countries, and although differences in certification and classification make comparison of little value the international position of England and Wales is probably neither so completely unsatisfactory nor so "near the bottom of the list" as some allege. Studying the individual causes of death, it appears that the rise in the total rate since about 1923 has been due to a definite increase in the rate from sepsis, while that from other causes has remained about the same. The mortality from toxæmia shows an upward trend, while that from hæmorrhage a decline. The increase over eight years in the rate for total abortions is about 18 per cent. as compared with about 9 per cent. for all puerperal causes.

Taking the whole of the 79 county boroughs of England, no association between overcrowding and puerperal mortality was found; in the West Riding, however, the towns with most overcrowding tend to have the highest rate of puerperal mortality, the three boroughs with the largest proportion of overcrowding having also the highest mortality from toxæmia. In Lancashire, on the other hand, the towns with most overcrowding had a lower mortality than the others and similar results were obtained for the districts of London.

On the whole, the proportion of women employed in any "gainful" occupation and the rates of puerperal mortality are found to rise and fall together; when the occupation is industrial the tendency is more conspicuous. In the county boroughs of England the proportion of women employed in personal service tended to be inversely related to mortality-rate; this, the report points out, does not mean that personal service per se is conducive to a low rate, and the association is reversed in London. The extent of unemployment seemed to be the best index of prevailing economic conditions available for general use, and using that index no consistent association is found between puerperal mortality-rates and economic conditions either in the same year or the succeeding year. The distribution of rainfall and of the incidence of puerperal mortality are similar (Figs. 2 and 3), but unfortunately the meteorological observations have not necessarily been made in the administrative areas to which the mortality returns relate. The statistically significant degree of correlation which exists does not mean that there is any causal relation between rainfall and puerperal mortality; the association may be merely that high rates and high rainfall occur in certain geographical areas of the country. The report says that there may also be an association between other climatic factors—sunshine, temperature, and humidity for instance—but the data to demonstrate this association are not available. In the areas visited deaths from puerperal sepsis tend to occur most frequently in the coldest quarter of the year, the time succeeding the wettest and most sunless quarter; deaths from toxæmia, in contrast, tend to occur most in the warmest quarter, which succeeds the driest and sunniest.

The relation of parity to risks of maternal mortality was studied from a sample of births. Between

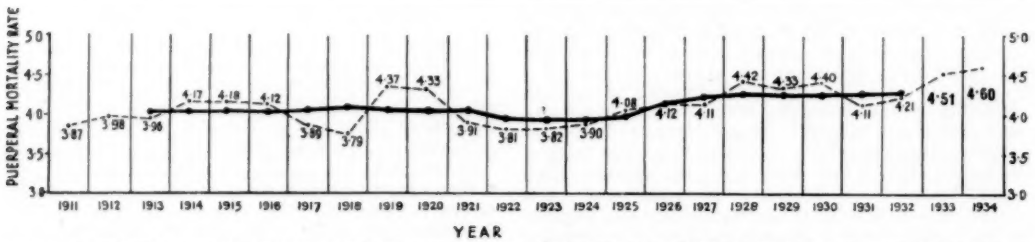


FIG. 1 (reproduced from the Ministry of Health Report).—Trend of puerperal mortality in England and Wales during 1911–34 as indicated by a line representing the five-year moving averages of the rates.

35 and 40 per cent. of legitimate and from 60 to 70 per cent. of illegitimate live births were the outcome of first pregnancies, and after excluding deaths from abortion about 45 per cent. of the deaths of married women are found to occur in first pregnancies. The average risk to married women who have already reached the seventh month of pregnancy is lowest in the third pregnancy and then increases progressively with birth order. The average risk of confinement at the first pregnancy is about 25 per cent. in excess of the general risk for all confinements and exceeds the risk for subsequent confinements up to about the eighth, after which the risks become greater than that of a first confinement. Twin confinements are subject to a considerably higher mortality risk than those resulting in a single child. The falling birth-rate has resulted during the last ten years in an increase in the proportion of first confinements and at the same time in a fall in the proportion of confinements of women who have had many children. The opposing effects of these changes on the total mortality risk have been almost complementary in the country as a whole so that an increase during ten years amounting to round about 1 or 2 per cent. of the death-rate is all that can be accounted for by fall in fertility. The rates of puerperal mortality among the wives of men classified socially according to their occupations decline in passing from professional and middle-classes to the unskilled classes, this being specially evident for puerperal sepsis but not for puerperal hæmorrhage.

In several of the districts visited it was suggested that the prevalence of scarlet fever in the area coincided with prevalence of puerperal fever. On examination of the evidence the prevalence of puerperal sepsis in an individual district did not seem to depend on the prevalence of other diseases of streptococcal origin although for the country as a whole conditions favourable to a high prevalence of puerperal fever seemed to predispose also to a high

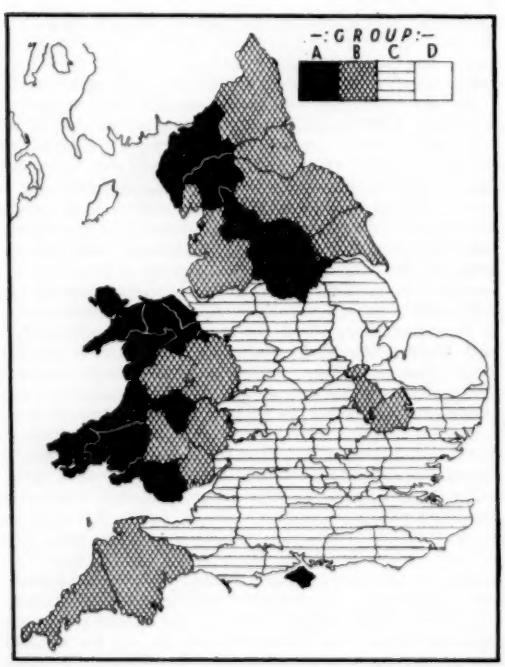


FIG. 2 (from the Report).—Puerperal mortality by counties during 1924–33. Group A = rates higher than that of England and Wales (i.e., 4·21 per 1000 live births) by 20 per cent. or more. Group B = rates higher by less than 20 per cent. Group C = rates lower by less than 20 per cent. Group D = rates lower by 20 per cent. or more.

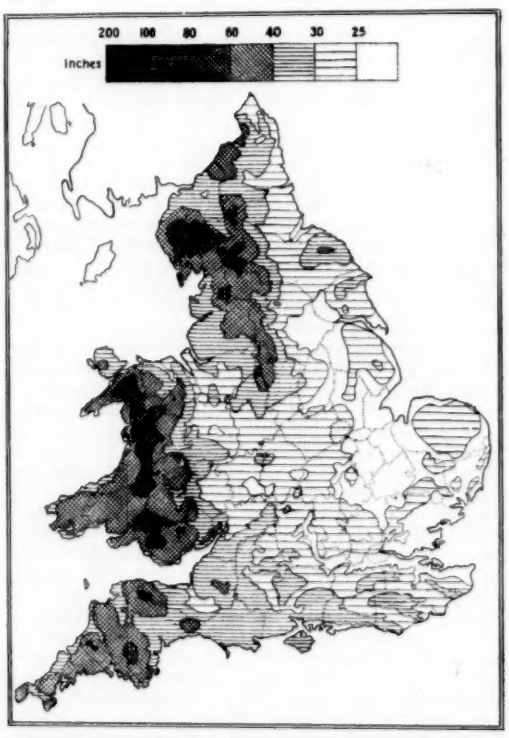


FIG. 3 (from the Report).—Average annual rainfall of England and Wales (1881–1915).

prevalence of scarlet fever, erysipelas and diphtheria. (Fig. 4.)

CIRCUMSTANCES OF MATERNAL DEATHS IN 1934 IN THE AREAS VISITED

In all, 775 deaths were investigated, but in 3 pregnancy was found not to be present and in 2 the pregnancy was considered to be incidental to the death. All available data relevant to environmental, social, and economic conditions of the remaining 770 cases and particulars of death were collected. The deaths were classified for the most part with small modification, according to the recommendations of the Scottish Departmental Committee.

Toxæmia.—There were 137 deaths directly due to toxæmia; of these 73 were attributed to eclampsia. Again the greatest number of deaths was found in the third quarter of the year; the financial circumstances of most of the patients excluded the likelihood of poverty and consequent lack of food being the cause. The supervision during the antenatal period was judged to be good in only 2 cases, reasonably careful in 12, deficient in 37, none in 11, and unknown in 11. To pre-eclamptic toxæmia 26 deaths were assigned, 10 of these occurring in the third quarter. The ages of 12 of the women were between twenty-five and forty, and only 1 was over forty; 13 were primiparous. The 6 deaths from pyelitis bore out the statement that pyelitis occurs commonly in young women, for 5 of them were pregnant for the first time and all of them were under twenty-nine. Hyperemesis accounted for 19 deaths, undefined toxæmia for 7, and acute yellow atrophy of the liver for 6. In no less than 28 per cent. of the 770 deaths investigated toxæmia either influenced the issue or was the cause of death. It is therefore held to be a contributory factor in a large proportion of maternal deaths.

Hæmorrhage.—Antepartum hæmorrhage in which there was no evidence of abnormal implantation of the placenta caused 27 deaths; a large proportion of the women were in the higher age and parity groups; 15 were over thirty-five years old and 16 were mothers of more than four children; in 4 a history of from one to four abortions was obtained. Placenta prævia with hæmorrhage accounted for 25 deaths; again the women were mainly in the later years of child bearing, more than half being over thirty-five; 10 of the women were mothers of more than four children and 3 had had eleven, twelve, and fourteen children respectively. Post-partum hæmorrhage was held responsible for 21 deaths. The report states that the records of treatment of these cases of P.P.H. demonstrate the need for adequate consultative and transfusion services. In six instances the early departure of the attendant after delivery or after hæmorrhage may have influenced the issue.

Trauma and sudden death.—The 92 deaths in this group were classified into obstetric shock 43, embolism 28, rupture of the uterus 7, extensive tears of cervix, vagina or vulva 3, deaths associated with anæsthetics 6, and deaths from paralytic ileus and intestinal obstruction after Cæsarean section 5. Over half of these women were between the ages of thirty and thirty-nine and also over half were primiparous, but among the group attributed to shock most of the women were under thirty.

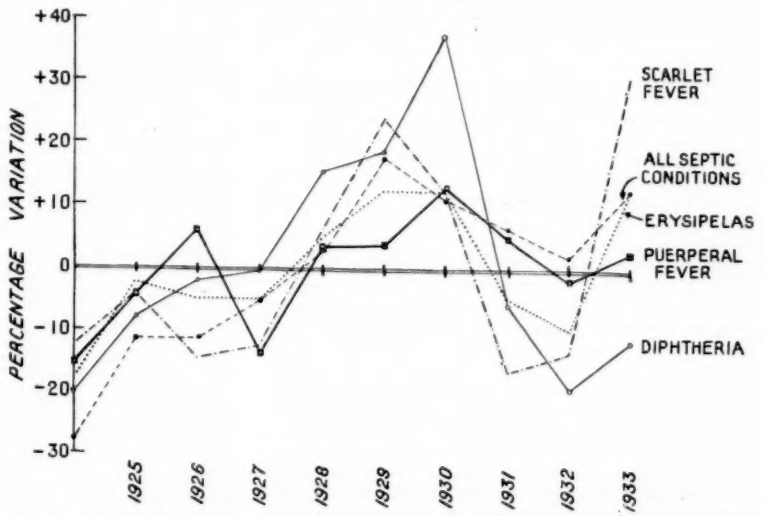


FIG. 4 (modified from the Report).—Graph showing percentage variations from the average rate (England and Wales) for 1924–33. Scarlet fever, erysipelas, and diphtheria = notifications per 1000 population. Puerperal fever = notifications per 1000 live births. All septic conditions = deaths per million population.

Puerperal sepsis.—If the 84 deaths attributed to post-abortive sepsis are deducted from the total 303 of this group, the remaining 219 represent 28·4 per cent. of the total puerperal mortality. The records of treatment varied considerably. Blood transfusion was stated to have been undertaken in 10 cases, and serum to have been administered in 74, while 17 women were treated by Hobbs's glycerin method. The report says that conclusions could not be drawn about serum treatment as in many cases it was not based on scientific principles; various types of sera were administered, including humanised serum, anti-scarlet serum and polyvalent serum. In a number of instances several kinds of serum were given to one patient. Conditions which may have made septic infection more likely were present in many of the cases classified in this group as normal deliveries; some of the women were in poor health, 23 had definite signs of toxæmia and in 37 there was laceration of the soft parts. The report discusses several aspects of obstetric practice.

Forceps were used in 140 of the 627 cases of the series reaching the twenty-eighth week; their use was unsuccessful in 27. They were applied for occipito-posterior presentation in 12 cases, breech 5, twins 2, contracted pelvis 7, ante-partum hæmorrhage 11, eclampsia 13, toxæmia 4, other illnesses of the mother 16, and signs of fœtal distress 1. In 14 instances the only reason given for the use of forceps was primiparity, in 25 the indication given was inertia and prolonged labour. Sepsis was the

cause of death in 43 per cent. of these forceps cases.

Cæsarean section had been performed in 52 of the 627 cases; earlier attempts to deliver had been made in 11 of these and in 3 several attempts at forceps delivery had been made. In some of the districts visited an obstetric specialist had not been available and surgeons with little obstetric experience had been appointed to act in their stead. They had naturally been inclined to adopt a procedure which was familiar to them; the percentage of deliveries by Cæsarean section at three big London hospitals investigated varied between 0·55 and 3·49, whereas in a hospital with a small maternity unit 27 of the 104 deliveries in a year were by Cæsarean section, while 52 cases were normal.

Condition of the infant.—An attempt was made to find out the toll of infant life represented by the maternal deaths; 101 mothers of the series of 770 died undelivered and there were 127 abortions; in all, half of the pregnancies ended in the death of both mother and fœtus.

The conclusion is reached in the report that in many instances ignorance or lack of coöperation on the part of the patient or her relatives prejudiced her chance of recovery. The standard of practice of midwives in some cases was considered to be unsatisfactory, the antenatal supervision perfunctory, medical assistance sought too late and procedures inconsistent with competent midwifery were occasionally adopted. The treatment in many hospitals was efficient and comprehensive, in others it left much to be desired. The general practitioner, it was realised, was often called to an emergency in a patient's home and faced with problems of great difficulty, often without assistance, in unsuitable surroundings and under unfavourable conditions; many of the histories indicate that notwithstanding the handicaps, careful obstetric procedures were adopted yet sudden and unforeseen complications led to a fatal issue.

After pointing out some of the lessons to be learnt from this series of deaths the report mentions that the conclusions agree with those of the Departmental Committee of 1932; their recommendations have been implemented in the training of medical students, in the development of maternity services, and by the provision of salaried midwives; "but," the report says, "the rôle of the general practitioner in midwifery has not yet received the attention it deserves."

ABORTION

Abortion was investigated by the local inquiries into maternal deaths, by study of national statistics, and by collecting impressions. The report concludes that there does not seem to be any reliable means of estimating the incidence of abortion and that it is difficult and often impossible to differentiate in practice between a spontaneous abortion and one induced artificially. The impression was gained that the practice of artificial abortion is common and appears to be increasing; is more prevalent in some districts than others and is not restricted to any one class. In some areas the provision for in-patient treatment under expert supervision were inadequate. The dangers of artificially induced abortion do not appear to be sufficiently realised and there is urgent need for the education of women about the damage to health and danger to life from attempts to terminate pregnancy artificially. Abortion (whether spontaneous or artificially induced, but excluding cases classed as criminal) is an important factor in the puerperal mortality-rate of the country since approximately 14 per cent. of all puerperal deaths are due to this cause. The statistics suggest that the trend of abortion rates is increasing more than that of other puerperal causes. The death-rate from abortion is higher in the aggregate of areas with high average mortality-rates than that of England and Wales as a whole. There are, of course, many more deaths from abortion among married women than among the unmarried, but abortion is responsible for a greater proportion of the deaths among the latter class and is largely responsible for the higher maternal mortality-rate of unmarried women.

MATERNITY SERVICES

The report reviews the evolution of the maternity services up to the present, commenting that at present the local authorities have no say in the selection of practitioners who may be called to the assistance of midwives and to whom they pay fees. The investigators consider that only those practitioners who show special interest in and have considerable practical experience of midwifery should be called to help a midwife, instead of leaving the choice when possible to the patient in accordance with the rules of the Central Midwives Board. Brief reference is made to the excellent results obtained by the Rochdale "experiment" and to other general practitioner schemes.

The investigators suggest that the present provisions for maternity services should be amplified by the establishment, under the direction of the medical officer of health, of a service of obstetric consultants to assist general practitioners and midwives, to conduct consultative antenatal and postnatal clinics, to supervise the treatment of patients in hospitals under local authorities, to investigate the circumstances of each maternal death, and to be responsible for emergency domiciliary treatment by flying squads. They also recommend that more maternity accommodation should be provided with beds for antenatal patients, that antenatal clinics be provided in all but sparsely populated districts where provision for medical domiciliary supervision may be made. Satisfactory arrangements should be made to accommodate patients suffering from puerperal sepsis and abortion. Education of the woman and the general public should be borne in mind to obtain better coöperation, and health visitors should visit homes to encourage women to obtain antenatal care. The investigators also suggest that a service of home helps should be provided where possible and that many necessary extras such as supplementary nourishment, laboratory facilities, and sterile drums of dressings should be available as required.

The Report for Wales

The investigation in Wales was carried out on similar lines and is described in a companion report.[2] The death-rate from childbirth was found to be high in all parts of Wales and for the decade 1924–33 the puerperal mortality was 35 per cent. above the rate for England. The rates from sepsis and other causes were high. The rates in the special areas have increased substantially, whereas the aggregate in other areas show a slight decrease. On the whole, where the total death-rate was high, the puerperal mortality-rate was high too, and the report points out that the non-puerperal death-rate in Wales is higher than that in England. It is believed that an

[2] Report on Maternal Mortality in Wales. Cmd. 5423. London: H.M. Stationery Office. 1937. Pp. 156. 2*s.* 6*d.*

excess of intercurrent disease among expecting mothers has been a contributory cause in producing the high rate; anæmia and debility are common.

Doctors now attend fewer confinements than formerly. A good deal of the instrumental delivery by doctors under modern conditions of practice is considered to be unnecessary and is held to have played some part in increasing the maternal mortality. The suggestion is made that more hospital beds should be provided, and at them the family doctor should have opportunity of observing the conduct of the case by the specialist in charge.

The maternity services of most of the local authorities are thought to be inadequate and in many parts of the country very little maternity work is undertaken by them. The report calls for extension of the services and attention to the general health and education of the mothers.

EMPIRE CONFERENCE ON THE CARE AND AFTER-CARE OF TUBERCULOSIS

AT the first session of this conference on May 3rd Lord WILLINGDON took the chair and Sir KINGSLEY WOOD welcomed the delegates on behalf of the Government. Reviewing the position of tuberculosis in England and Wales, he said that until ten or eleven years ago, tuberculosis stood foremost among the killing diseases in this country. Although the deaths from the disease had fallen conspicuously there was no reason to view the present situation with complacency. The improvement had been brought about by the awakening of the public consciousness to the problem, by better preventive measures and better treatment. The occurrence of tuberculosis in an individual sooner or later affected the family resources, and care for the family as well as for the patient played a large part in the treatment of tuberculosis. Papworth village settlement had done much in this connexion.

Sir ARTHUR MACNALTY reviewed the change of outlook on tuberculosis which had taken place both among medical practitioners and the public in the last few decades and referred to recent advances in treatment, diagnosis, and prognosis—notably artificial pneumothorax, thoracic surgery, improved radiology, and examinations of the blood. The social and economic implications of tuberculosis were far reaching; Sir Pendrill Varrier-Jones's work at Papworth was a great contribution, but many patients were unfitted temperamentally or in other ways to live in a village settlement; their need for care had been too long neglected, but was now receiving more attention from local authorities.

INDIA

Major-General Sir CUTHBERT SPRAWSON (India) spoke of the peculiarities of the tuberculosis problem in India. The steady decline in mortality from pulmonary tuberculosis in Great Britain had not been experienced in most overseas countries, and certainly not in India. The incidence and mortality of tuberculosis in India were really unknown because the vital statistics, except for the Army and the prison population, were not trustworthy, not even those relating to the large cities. The public health commissioner had recently estimated that there were about two million tuberculous people in India, but this was a very rough estimate, comparable to the estimate of one million for leprosy; the speaker thought the number of cases in India was greater. The vital statistics were likely to understate the numbers because so many cases were undiagnosed and unreported. Even so, the cities of Poona and Ahmedabad reported that one death out of every twelve was from tuberculosis and in Calcutta the ratio was even higher. The death-rate from pulmonary tuberculosis in Ipswich was 52 per 100,000 population and in Chicago 56, while that for Calcutta the figure was said to be 240, and the real figure was probably even higher. Sir Cuthbert had estimated that some ten years ago one in every seven people in Lucknow died from tuberculosis. At any rate the number of deaths from that cause was certainly very large and there was a general feeling that it was increasing. Twenty years ago Dr. Lankester, an expert appointed by the Government, had reported to this effect; whether the numbers were still increasing was unknown but by analogy with other countries this seemed probable. India was still principally an agricultural country, but industrialisation had begun in several areas; experience in other countries had shown that industrialisation, especially if not well controlled, and free immigration of a rural population into city life were accompanied by an increase in the incidence in tuberculosis. The speaker wished to emphasise the magnitude of the danger in India and the pressing urgency of more energetic measures in the campaign.

CANADA

Dr. R. E. WODEHOUSE (Canada) said that Canada was greatly influenced in practice and in the general view of the tuberculosis problem by the attitude of her cousins in the United States. Some British modifications of American practice had been made but they had as yet no Papworth. The death-rate from tuberculosis in 1936 would be about 60 per 100,000, having fallen to about a third of its height of thirty years ago. The rate among North American Indians was very high, about 700 per 100,000, while the rate in other parts of the population was as low as 25. In some areas there was ample accommodation, free of charge, for anyone with tuberculosis, and there was a scheme which gave allowances to wives and creches for the children so that the wives could go out to work. While a man was in hospital the State gave the wife the same pension that she would receive if widowed; if the wife were in hospital an allowance was made to the man for a housekeeper in order to keep the family together. Dr. Wodehouse felt that tuberculosis among the North American Indian could be as well controlled as among the whites if there were enough financial assistance.

SOUTH AFRICA

Dr. A. D. PRINGLE (Transvaal), speaking on behalf of Dr. B. A. Dormer who was ill, explained that the population of S. Africa is preponderatingly native, the proportions being 2 million Europeans to 7 million natives, of whom 6 million are the original tribes of S. Africa. The death-rate among natives was certainly alarming and the population was hard to get hold of and to treat, but he did not agree with Sir Cuthbert Sprawson that the statistics of a native population were hopelessly inadequate. In S. Africa the death-rate from tuberculosis for the colour population was six times greater than for Europeans. Widely different reports were current about the incidence of tuberculosis in rural areas; a change from the tribal way of life had a profound influence on the health of the natives apart from the effects of mining and urban life.

Prof. S. LYLE CUMMINS (Wales) said that although the native in South Africa seemed to be very susceptible to tuberculosis the conditions of work played a considerable part in this; the women and children were not so liable to be affected as the men. It was, he thought, impossible for the State at present to finance adequate treatment, and apart from that the natives hated and dreaded being transferred from their home surroundings to marble halls and hospital regulations. A few missionary centres with crude shacks and shelters had achieved much in treating the natives; their workers seemed to have the clue to getting the natives' trust and had been able to treat natives in circumstances which they understood.

At the afternoon session Lord DAWSON OF PENN, who presided, said that the care and after-care of the tuberculous claimed attention not only from the humanitarian motive of consideration for the patient but also for the sake of public health. The growth of knowledge and social conscience had preserved many lives which in themselves required every care. He did not think, however, that these patched-up lives were good begetters of our future race; unless this aspect of after-care were considered a great injustice might be inflicted on the generations to come.

EUROPEANS IN SOUTH AFRICA

Dr. A. D. PRINGLE spoke of the care and after-care of the tuberculous among the European mining population of the Rand and among the non-mining population of the Transvaal and Natal. His subject, he said, was linked up with the history of the mining industry, which had been in existence for about 50 years. About 1903 it became obvious that a large number of employees were contracting silicotic fibrosis and tuberculosis. The deaths were mainly among men from Cornwall, Northumberland, and Wales. Since those days, four principal institutions to deal with tuberculosis had come into being: first, there was the Springkell Hospital, built by the industry and administered now by a board composed of representatives of the industry and of the Government; second, the South African Institute for Medical Research, also built by the industry. There was the Miners' Phthisis Medical Bureau of Examiners created in 1916 and made up of ten medical men; their job was to examine every applicant for employment in the mines. Every year the bureau examined 20,000 men, of whom some 60 per cent. were rejected; they also examined every miner every six months; if a man contracted silicosis he was warned, if he became tuberculous he was no longer allowed to work, and the bureau furnished a report for the compensating board. The fourth institution was the Miners' Compensation Board, consisting of Government nominees except for one representative of the miners. Behind all these was the administrative body of the industry itself, the Gold Mines Production Committee with representatives from each mine. A lump sum was given in compensation to any man who developed silicosis, and a man contracting tuberculosis was given a pension which was continued, if need be, to his widow and children; he was offered work on the surface. The sick miner was admitted free of charge to a hospital or sanatorium. Gold-mining was, of course, a business proposition like any other and these provisions for the miners cost money; the allowance for compensation this year amounted to about one million pounds. The mortality-rate from tuberculosis among miners was now no greater than that in the Royal Air Force in this country. Of recent years non-mining tuberculous patients had been admitted to the Springkell Hospital. Outside the industry there was little provision for such patients.

EFFECT OF CITY ENVIRONMENT

Dr. S. VERE PEARSON (Mundesley) spoke of the tendency in every country for the rural population to drain into the cities. This change in distribution of population contributed three factors to the problem of tuberculosis: much time and energy was wasted in travelling, recreation in the open air became more and more impossible, and anxiety and worry from the city environment were imposed. The death-rate from tuberculosis in the thickly populated areas of Manchester was almost as high as that for Calcutta, while nearby, at the garden city of Wythenshawe, the rate was but one-third of those figures. At Letchworth the rate was lower than those for the counties of Hertford and Norfolk. Comparisons of city and rural communities had to take into count the source from which the city inmates were derived.

Dr. F. HEAF outlined the main purposes of the London County Council tuberculosis scheme which consisted of three parts: domiciliary, dispensary, and residential. The domiciliary treatment was regarded as the domain of the general and insurance practitioners. The dispensary service was responsible for care, after-care, examination of contacts, and special forms of treatment. Residential treatment was now provided free although voluntary subscriptions were accepted. Each area had its own dispensary while the L.C.C. arranged for all resident treatment. This dual control required much coöperation. The after-care work of the dispensaries dealt with housing conditions, employment, and education for re-employment. On the whole, provision for post-sanatorium patients had been sadly neglected; some boroughs had lectures in handicrafts but these provisions were small in relation to the need. For youths there was a centre at Burrow Hill for training in clerical work and gardening. The after-care committee also gave advice and assistance to the patient and his family. Dr. Heaf quoted an investigation made in 1926 by Sir Frederick Menzies, in which the death-rates from tuberculosis in three London boroughs were compared. Although the rate for all forms of tuberculosis was highest in the poorest borough, the ratio of death-rates from tuberculosis to that for all causes was the same in each. Environment and social conditions seemed to have no selective effect on the relative mortality from tuberculosis. Although the actual cause of breakdown in tuberculosis was obscure, infection did not seem to be the chief item. Fatigue and undernourishment probably called for greater attention in a civilised, or mechanised, country. Dr. Heaf quoted figures [1] showing that the average rate of incidence of tuberculosis for certain outdoor manual workers in London and the provinces was greater than that for indoor non-manual workers. This was a forcible criticism of the old idea that open air was essential in treatment. The class which endured the hardest physical strain, received the lowest wages, and spent the smallest amount on food was the one most prone to tuberculosis. He could not help thinking that the vast majority of adults would remain free from active tuberculosis even if frequently exposed to infection, provided they were well nourished

[1] See *Lancet*, 1936, **2**, 1115.

and were not subjected to excessive strain, physical or mental. Children, on the other hand, presented a different problem and demanded protection from the bacillus. Dr. Heaf thought it was more important for those responsible for after-care to see that the patient and his family had sufficient good food and freedom from worry rather than lay stress on a few stray bacilli.

ENVIRONMENTAL FACTORS IN CARE AND AFTER-CARE

Sir PENDRILL VARRIER-JONES felt that after-care was the most powerful method now available in the prevention of tuberculosis. He wanted the medical profession, social workers, and those interested in economics to realise that after-care must be linked to hospital sanatoriums. He thought the idea of environment had been inadequate; it had so often been taken to include only the material environment. Many patients contracted the disease although they had been working in good conditions; the advice that good food and housing and a light job in the open air would solve all problems had to be given up. That raising the standard of living did not necessarily raise the standard of resistance to disease was shown by the present unmistakable rise of incidence of tuberculosis in young women. A definite though undetermined maximum dose of infection was necessary to produce clinical disease, and the patient's resistance determined the size of this dose. This power of resistance was governed not only by material conditions and physical exercise but by a mental state. For this reason intensive research should be undertaken into the psychological aspect of the problem without delay. From his observations at Papworth Sir Pendrill was convinced that enforced idleness led to destruction of moral fibre; this aspect had been neglected by medical men who paid too much attention to the lung and too little to the organism in which it was situated. Sir Pendrill was not advocating indiscriminate exercise nor did he believe that work as a therapeutic measure acted by producing auto-inoculation. In the treatment of the consumptive the environment had to have something psychological about it. It was curious how few people paused to ask why after-care was necessary. Could it be admitted that it was because we could not cure and in many cases could not permanently arrest tuberculosis? The strange thing was that the longer the case was under treatment and the more elaborate the treatment the greater the need for after-care.

Good housing was essential to enable the disease to be arrested permanently, but so were a sense of well being, work, and a mind free from worry. Work had to be of the right kind, for a middle-class or working man had something to sell, and which he must sell if he is to have well being of mind. It was disastrous for the man to take on what he considered to be an inferior grade of work or to put him to a job with initiative when he had exercised none before. Many committees imagined that a patient should give his labour to the Cause, but why should he? Labour was his only asset. Too often the medieval outlook was kept that a sick man was inferior. That was not so and frequently the tuberculous were victims of civilisation. The best that could be done for them was to try and compensate for the wrong society had done them by providing the best environment and restoring their working capacity. The result would be cheaper than hospitalisation, in cash and morale.

IRELAND

(FROM OUR OWN CORRESPONDENT)

AN EXCLUSIVE POLICY IN NORTHERN IRELAND

A LAWSUIT heard in Belfast last week has drawn attention to regulations made by the Ministry of Home Affairs in Northern Ireland which restrict more narrowly than heretofore the qualifications for office as a dispensary medical officer or district medical officer of health. Until the issue of these regulations the usual medical qualifications and evidence of instruction in vaccination were the only qualifications required for these offices in Northern Ireland. The appointments were made by local boards of guardians but were subject to the approval of the Minister of Home Affairs. On Nov. 26th, 1935, the Minister made new regulations which added the new condition that the officer must have been resident in the United Kingdom of Great Britain and Ireland for a period of five years prior to appointment. It had happened that on Nov. 14th, 1935—twelve days before the making of the regulations—the Newry guardians had elected Dr. John Francis McGeough of Swan Park, Monaghan, to be medical officer of the Mullaghglass dispensary district in their union, and had forwarded his name to the Ministry for approval. After some delay the Ministry refused approval on the ground that it would be contrary to the regulations of Nov. 26th, Dr. McGeough not having resided in the United Kingdom for the requisite period, and directed the Newry guardians to proceed to make a fresh appointment. Dr. McGeough obtained a conditional order of mandamus directed to the Secretary to the Ministry calling on the Ministry to sanction his appointment, on the ground that the regulations having been made after his election they could not apply to him. Last week the application was made to make this conditional order absolute, and it was refused by the two judges, Mr. Justice Brown and Mr. Justice Megaw. The judges do not appear to have decided whether Dr. McGeough was subject to the regulations or not, but holding that there was an absolute discretion as to approval resting in the Minister, the issue of an order would be useless.

Apart from the consideration of the particular case of Dr. McGeough the making of the regulations has caused uneasiness among the profession in the Irish Free State. Hitherto there has been "free trade" between the United Kingdom and the Irish Free State as far as the medical profession is concerned. The qualifications of the universities and the licensing bodies in the Irish Free State carry admission to the Medical Register equally with the qualifications granted in Northern Ireland. Conversely all those whose names are on the Medical Register can claim admission to the Medical Register of the Irish Free State. Medical men resident in or educated in Northern Ireland or Great Britain are free to be elected to any medical position in the Irish Free State and many of them hold high positions in the public medical services there. Until the framing of these regulations medical men from the Irish Free State were eligible to hold any public appointment in Northern Ireland, and in common with their fellows from the overseas Dominions they are eligible for admission to His Majesty's Forces of the United Kingdom, and in fact have gained distinction and held high offices in their medical services, as well as in the Civil Service, and in the service of local authorities. It is regarded as anomalous that Northern

Ireland should offer the only exception to this general freedom of employment. As regards many of the younger graduates who are natives of Northern Ireland the regulations may cause special hardship. Many young men from the north come to the Dublin schools of medicine for their education. On their return to their homes they will find themselves debarred from competing for public appointments, not having been resident in the United Kingdom for the requisite period of five years. It is understood that the regulations are viewed with repugnance by the medical profession in the north, and the hope is expressed in medical circles in the south that the Ministry may think fit to cancel them.

PARIS

(FROM OUR OWN CORRESPONDENT)

TUBERCULIN TESTS OF NURSES AND CHILDREN

THE Academy of Medicine has been hearing a lot about tuberculin-testing. On April 6th a team of workers from the Beaujon Hospital in Paris presented a report on Pirquet and Mantoux tuberculin-testing of 100 nurses between the ages of nineteen and thirty. It was found that 23 of them were negative reactors even when large doses of tuberculin were given by intracutaneous injection. When they were classified according as they had or had not lived for many years in Paris, no difference was demonstrable in the proportion of negative reactors; but when they were classified according to age, it was found that whereas 28 per cent. of those under twenty-three were tuberculin-negative, the corresponding figure for those above that age was only 15 per cent. This confirms old teaching that the proportion of negative reactors dwindles with age; but it seems remarkable that as many as 23 per cent. of these nurses should have remained uninfected despite the countless opportunities provided by a big general hospital.

On April 13th the Academy received a report on the tuberculin-testing of 1048 children under the age of fourteen—among them 119 who in infancy had been given B C G by mouth. Dr. Armand-Delille, who was responsible for this study, undertook it because he wanted to verify the now common assumption among his colleagues that B C G makes the Pirquet reaction positive, and that it is therefore useless to employ this test in children who have been given B C G. This assumption seems unjustified, for the proportion of tuberculin reactors was almost the same among the B C G children as among the controls. Be it noted, however, that the observation applies only to B C G given by the mouth at birth in three doses, and not to B C G given by subcutaneous injection. This communication from Armand-Delille and his collaborators drew some interesting remarks from Dr. Guérin, who dealt at some length with the allergic responses of the tissues to B C G given by the mouth. He was inclined to think that more frequent and larger doses of B C G given by the mouth may be advisable.

PROFESSORSHIPS IN MEDICINE

What may be described as a preliminary and quite tentative taste of immortality is the recent creation of a new class of professor—professeur de classe exceptionnelle. As from Oct. 1st, 1937, eight professors of the first class have been promoted to this rank, which allows them to remain in office till they reach the age of seventy. The distinction has been conferred on two provincial professors, Bèrard of Lyons and Bouin of Strasbourg. The six Parisians are Bezançon, Carnot, Claude, Gosset, Ombrédanne, and Tiffeneau.

Another event of importance in the academic world is the creation of a new chair of medicine. Its occupant is to be professor of "assistance médico-sociale" or "médecine sociale." This being interpreted means sickness insurance and all the new machinery which has grown up around it. The new professor will be expected to teach fifth-year medical students the elements of social medicine. Such teaching should save the young medical practitioner of the future much racking of brain and insurance officials much revision of ill-drafted certificates. The new professor, who will enter on his duties next October, will rank as a third-class professor in the Paris faculty of medicine, and his emoluments will be 60,742 francs.

LEPROSY IN PARIS

At the end of 1934 the leprosy service of the Saint-Louis Hospital in Paris was confided to Dr. C. Flandin who, in association with Dr. J. Ragu, presented a disquieting report on the subject at a meeting of the Academy of Medicine on March 16th. When Dr. Flandin took charge of this service there were only 4 lepers in it; now it houses 26, and 69 others are under his observation either at the hospital or elsewhere. There are several reasons for this remarkable rise in so short a period from 4 to 95 cases of leprosy. In the first place, the greatest tact has been shown in dealing with the lepers, who are most sensitive to being treated as exhibits for medical students. In the second place, these patients have been assured that professional secrecy will be preserved with regard to them and that no step will be taken to intern them against their wills. A third inducement to lepers to come forward and submit to diagnosis is the success here believed to result from intravenous injections of a new preparation of chaulmoogra oil and cholesterol. Among the 95 patients were 41 whites who had passed some time in the colonies, 17 whites who had been born in the colonies, and 6 whites who had never left France. The remaining 31 patients were coloured or half-breeds. Four of the Europeans who had contracted the disease in the colonies had stayed there only 4 to 10 months; their incubation period ranged from 8 months to 25 years. The enormous differences in the length of the incubation period may in part be explained by a reference to the mode of infection; the comparatively short incubation period of 6 to 8 months is to be observed in patients contracting the disease by sexual intercourse with a leper, whereas comparatively long incubation periods are the result of mere residence in a leprous milieu. This was the case with 2 of the 6 cases of leprosy in persons who had never left France. In the remaining 4 cases the infection was conjugal. Now that it is definitely proven that leprosy can be contracted in France there may be a renewed clamour for compulsory notification and isolation; but Dr. Flandin is definitely opposed to such a course, being convinced that it will defeat its own object by driving leprosy underground. The measures he favours include facilities for diagnosis and treatment at a hospital, such as the Saint-Louis, which should be in touch with all the bodies working on behalf of lepers in France. In the course of the discussion following this communication to the Academy, Dr. Marchoux agreed with Dr. Flandin as to the undesirability of compulsory notification, and he considered the best solution of the problem to be the leprosy dispensary and supervision of the lepers by visiting nurses. His

suggestion that a commission should be appointed by the Academy to deal with this problem was accepted, and Dr. Flandin and Dr. Ragu's report was referred to a commission on which five leading members of the Academy will sit.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

PUBLIC HEALTH IN NORTH AMERICA

ON April 3rd health officers from the several States and from the Canadian provinces began to arrive in Washington. They stayed long enough to see the famous Japanese cherry blossoms give their brief annual display around the tidal basin at the end of the following week.

The rapid expansion of public health programmes under the Security Act has thrown a great strain upon the postgraduate teaching facilities of the U.S. medical schools. Professors of public health administration and other members of the faculties were present from Harvard, Gale, Johns Hopkins, Columbia, Vanderbilt, Michigan, Minnesota, Duke, the Massachusetts Institute of Technology, and the University of California. The University of Pennsylvania was represented by Miss Katharine Tucker of the School of Public Health Nursing. Short courses of training for health officers lasting for three to four months have been given as an emergency measure. Their value is variously estimated. Some educators believe that older men have scarcely time in three months to rediscover themselves in a school environment. Others felt that the courses do have a limited usefulness. All agreed that they were designed only for the "emergency," but it was obvious that in some States the "emergency" is not yet over.

The suggestion that the "long" course, lasting for one academic year and leading to the degree of C.P.H., might prove an expensive investment by the Government, since many of the graduates might return to private practice, led to a rapid compilation by Dr. Allen Freeman of the present status of C.P.H. graduates from his school. He shortly announced that of the 464 men who have taken the C.P.H. degree from Johns Hopkins only 26 have gone back into private practice; 17 are practising in the U.S.; and 9 in foreign countries. Dr. Haven Emerson said that Columbia University is getting an increasing number of private practitioners who study public health at their own expense but without any idea of ever leaving the private practice of medicine.

There was general agreement that despite the larger increase in the number of physicians studying public health, their quality as students compared well with that of previous classes. Very general agreement was expressed also with the view that in addition to the year's training in a school of public health the would-be health officer should serve an apprenticeship in the field under the direction of an experienced administrator.

In the training of public health nurses emphasis was placed on the importance of a good basic training in nursing as a pre-requisite to admission to post-graduate work. The general work of a public health nurse should also be completed before courses are offered in specialised nursing as, for example, in tuberculosis or syphilis. If short courses are to be given they should not be condensations of the regular courses but units which can eventually be added together into a "long" course.

On the morning of April 5th we enjoyed two addresses by visitors from Great Britain. Dr. Thomas Anwyl Davies, director of the Whitechapel V.D. Clinic, was introduced by Surgeon-General Parran and described to us the encouraging results of the work in London with which you must be familiar. He also spoke of his experiments with an antitoxin for gonorrhœa that has so far received no experimental confirmation in America, but which is now under investigation at Columbia University. Dr. Ambrose J. King was introduced by Dr. R. E. Wodehouse, deputy minister of health of Canada. He spoke on the public health control of gonorrhœa in Great Britain.

Dr. Rufus Cole, director of the hospital of the Rockefeller Institute, reported the latest progress in the development of pneumonia serum. It is found that antibodies developed in one species of animal differ from those developed in another species: one difference noted being in regard to the size of the molecule. The molecule of the antibody developed in a rabbit is smaller than that of the antibody developed in the horse and, as might be expected, the rabbit antibodies appear to diffuse more rapidly. Rabbit serum is also produced much more cheaply since rabbits are rapidly immunised and respond quite consistently. The use of rabbit serum so far has been limited but is promising.

Dr. F. W. Jackson, deputy minister of health of Manitoba, gave a thorough epidemiological description of an outbreak of poliomyelitis in his province. The provision of free diagnostic service had had a most salutary effect in bringing cases promptly under care. After this service was made available treatment was commenced in every case within 24 hours of the onset of symptoms, and no more deaths or cases of residual paralysis were observed. An unusual feature of the epidemic was the high rate of secondary cases in the quarantined families.

Dr. Estella Ford Warner opened a discussion on the place of health education in schools and among adults. The 48 States all provide some programme of health education, but there is no uniformity of practice. Insufficient use is made of the facilities of existing educational agencies. Dr. Parran announced the inauguration of a consulting service of health education in Washington. A service to give advice on the progress of the science of nutrition will also be provided. Nutritionists—or specialists in this science—are employed already in several States. The need for a special division of a State health department in this field is not yet generally accepted.

THE CHILDREN'S BUREAU

I wrote a year ago of the expanding field of public health activity. Reports given by the Children's Bureau to the State health officers on April 9th marked the extent to which this expansion has progressed during the year. $280,000 of federal funds and $47,000 of State funds have been paid out to private practitioners for conducting clinics for well babies or for expectant mothers or for crippled children. Dental clinics have also been subsidised and 54 dentists are employed on the staffs of State health departments. Consultation services in obstetrics have been very cordially welcomed by the practising profession, and in several States "institutes" conducted by members of university faculties in obstetrics or pædiatrics have been well attended. Important recommendations were adopted at this session looking to analysis of the causes of maternal deaths by the State health departments in coöperation

with the State medical societies with a view to raising the standards of obstetric practice, and also to the public employment of "qualified" nurses for maternity service. The American method of attacking the problem of providing medical care for the indigent begins to shape itself. Care will come in categories. The tuberculous, the syphilitics, the insane, are already widely recognised as social responsibilities. Cancer is being added. Heart disease is recognised in some States. New York and Massachusetts have broached the case of pneumonia. The work of the Children's Bureau extends the conception of social responsibility to obstetrics and pædiatrics. The full-time medical employees of the State and Federal Government will not increase greatly in numbers, but will as rapidly as possible be raised to higher standards of professional qualification, and it is to be hoped will be removed further from partisan political influence and given greater security of tenure. In the growth of this programme the help of the private practitioner will be sought and will be rewarded. Every effort will be made to see that he, too, has opportunities to keep abreast of the times and to improve his professional technique. If health insurance has any place in this American scheme it will only be as one far from dominating feature of the whole plan. Probably it will be tried out first on a small and experimental scale, to be judged by its ability to conform to the general outline of the larger plan of what has been described as "limited State medicine with private practice."

VIENNA

(FROM OUR OWN CORRESPONDENT)

WELFARE OF THOSE WITH HEART DISEASE

A COMMITTEE consisting of the foremost pathologists, medical men, and philanthropists, and also including the leaders of the Government and the Church, has recently founded a Society for the Welfare of Heart Patients, which at first will be active in Vienna itself, but will soon be able to extend its scope to the whole republic. In the pamphlet issued by this society, competent authors point out that the statistical data prove the alarming increase of cardiovascular trouble amongst the population. Whereas formerly tuberculosis and neoplasms were the principal causes of death heart disease now heads the mortality statistics. A few figures will serve as illustration: In 1932 there died in Austria 28·62 persons from tuberculosis against 86·26 who succumbed to cardiovascular diseases (per 10,000 living). The percentual picture is the following: In 1905 10·4 per cent. of the deaths were due to tuberculosis and as many to heart disease; in 1932 only 7·5 per cent. died from tuberculosis, but 22·7 per cent. from heart disease. Thus in 27 years the mortality in the one had decreased by 30 per cent. but in the other it had doubled. Furthermore, investigation amongst apparently healthy labourers showed that 15 per cent. of all factory hands aged 20–30 had more or less definite symptoms of circulatory disturbance. In the age-group 50–60 this figure went up to 65 per cent.; in other words, two-thirds of these persons doing physical work during their adult life have suffered definite damage to their cardiovascular system. A follow-up of patients observed in the Vienna Herzstation within the last two years has proved that 17·5 per cent. were incapacitated in their occupation or profession. This was due partly to the disease itself, partly to social, economic, and dwelling conditions, such as lack of means to buy expensive medicines, and living in high-storied houses without a lift, with overcrowded rooms and want of rest and quiet. The new society has therefore decided to make the following its aims: the erection of special homes for heart disease, with sanatoriums providing appropriate rest and exercise; the training of special nurses, and instruction of heart specialists; the collection of funds for future improvements, including the setting up of welfare centres in the country, of ambulatory classes for instruction of affected persons, and of a special museum. This society will of course coöperate with the existing clinics and similar welfare centres, to prevent double-track work.

AN INTERNATIONAL CONGRESS

Under a patronage of the Austrian Federal Government, and with Prof. d'Arsonval and Marchese Marconi as honorary chairmen, the first International Congress on Short Waves will be held in Vienna on July 12th–17th. Its transactions will deal with the relationship of short waves to physics, biology, and medicine. In the first section, therefore, the congress will discuss their properties, generation, conduction, detection, and measurement, their action on chemical systems, and finally the different methods of application and the uses of short waves. The biological section will bring papers on the action of short waves on plants and animals, on tissue cultures, on enzymes and ferments, and on their thermic effects. The third section will discuss the indications and contra-indications of short-wave therapy in the various branches of medicine and surgery. All the latest achievements and the technical methods and apparatus will be described. There will also be social functions, and interesting excursions through the Alps will be provided for the members. The secretary of the congress, Dr. Liebesny, may be addressed at his office in the Vienna Allgemeines Krankenhaus.

A DOUBLE CHANGE OF SEX CHARACTERS

At a recent meeting of the "Gesellschaft der Aerzte," Prof. Nowak and Dr. Wallis demonstrated an unusual and interesting condition in an unmarried woman aged 32. Two years ago her hitherto regular menstruation ceased and considerable changes in her appearance took place. The growth and distribution of her hair became masculine in type, the face became coarse, the voice deep, the muscles firmer, and the clitoris grew in size. Besides this an extensive acne appeared on the body, the typical fat deposits disappeared, and the mammæ diminished in size. The effect was a very noticeable masculinisation of the woman. More detailed examinations showed an increase of erythrocytes (6,600,000), a rise in blood pressure to 145 mm. Hg and in blood-sugar to 150 mg. per 100 c.cm. Folliculin could not be detected either in the urine or in the blood, and prolan was also absent in the urine, but on the other hand no masculine sex hormone was discovered. The patient was found to be suffering from a tumour of the right ovary, which was removed. Four weeks after the operation menses began again and have since remained regular. All the masculine attributes soon receded, the voice and the habitus becoming once again female in type. This included also a drop in the erythrocytes, in the blood pressure and blood-sugar. Folliculin could now be found in the urine in normal quantity, but prolan remained absent. The histological examination of the tumour proved it to be built up of the so-called lutein cells, but its

histogenesis is not yet clear. This case of sex-alteration, with increase of blood pressure, of the number of red blood-cells, and with hyperglycæmia, is most likely to be a case of "interrenalism." Probably the tumour that was removed from the ovary originated from isolated cortical adrenal tissue; such tumours are not uncommon and their effect on the sexual status is well known. In this case, however, histologists could not agree about the exact nature of the tumour. Since the adrenal cortex and the tissue of sexual glands originate from the same matrix, it is possible that in certain instances a tumour can form from this fundamental substance, which differs from the adrenal gland and the sexual gland but contains functional qualities common to them both. A remarkable feature in this patient was the rapidity with which the changes took place in both directions.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

FROM A MEDICAL ECONOMIST

II

KINGS are anointed with oil for the same reason as sacrifices used to be anointed—to ensure burning. The symbolism, in these days, is obscure but in earlier days all men understood and approved.

In earlier days a king was his people's most valuable possession. This was no embellishment of courtiers; every man knew it. Every man saw, in the King's grace, his own dearest interest and was eager, therefore, that the utmost honour should be accorded to Majesty. It may sound an overstatement, but is sober fact that only those peoples could be strong and secure who possessed good kings.

The point is worth making at a moment when it seems to be generally accepted that the world is faced with a choice between democracy and dictatorship. What is democracy? What is dictatorship? And how does it come about that these two exhaust all the political possibilities? The answer which is commonly given is that, in fact, there is no third choice because a constitutional monarchy is a form of democracy whereas an autocratic monarchy is a form of dictatorship.

* * *

This, it is worth recalling, was not Disraeli's view. That great statesman proclaimed that monarchy was not only the most recent, historically, of all forms of government but was also so exalted a form that only men of real understanding could measure its worth. He was not speaking of constitutional monarchy; he was certainly not speaking of the kind of monarchy which, for example, the Tarquins bestowed upon Rome. What Disraeli had in mind was a king whose power proceeded, in the first instance, from himself alone without reference to armies or parties or factions—without reference even to popular election. Ibsen had the same idea. He made one of the characters in one of his historical plays declare of a Norse king that he possessed "*the King-thought.*"

It is matter of knowledge that dictators are always party leaders. They command a class, whether the army or the nobility or the merchants or the "proletariat" or persons of some special political complexion. The dictator has come to power, as a rule, because his party has come to power. He acts for and by his party and professes to see in its philosophy the only means of national salvation. If he is a soldier, the moral virtues of soldiers are exalted and the structure of society is remade on military lines. If, on the contrary, he is the leader of Jacobins or Bolshevists the opponents of these factions will be attacked and destroyed.

Parties, however, parties of the Right as well as parties of the Left, have one feature in common—all possess secret funds. None, except a small circle, knows who are the subscribers to the party funds and none therefore can really say whether or not the policy of the party is sincere. The chief subscriber to a party of the extreme Left, for example, might be a millionaire of the extreme Right and that fact might be known only to a handful of party managers—it is conceivable even that not a single manager might know the real source of the support. But what would happen, in such a case, would be that if the party began to act in a way contrary to its backer's wishes, its money would evaporate and all its officials would be ruined. In such circumstances a break-up of the party could scarcely be avoided.

It is when dictatorship is viewed, steadily, from this point of view that its likeness to, rather than its difference from, some forms of democracy becomes apparent. Democracy consists, usually, of a group of parties, each possessed of financial backers; dictatorship arrives often enough when one of these parties savages all the others by reason of its more substantial backing or because the backers of the opposing parties have withdrawn their support.

It will be objected that parties compete for popular support and cannot be returned to power unless they secure it. But popular support in these days of mass electorates means propaganda on the great scale and propaganda on the great scale is exceedingly costly. Unless a party possesses backers it cannot hope to win. It does not follow, of course, that all backers are interested persons. The backers of a party may be as sincerely convinced of the value of its aims as the humblest members. Nor need they, necessarily, be rich men. The point is that there must be backers of one kind or another if the party is to come to power and this applies to military as well as to civil parties.

The dictator, therefore, like the democratic government, is elected on what Americans call "the party ticket" and will be compelled to consult the interests of the party. This will be easy for him so long as party interests and national interests are the same or rather so long as he remains convinced that they are the same. But it is always on the cards that an issue may arise whereby the party and the nation are set in opposition. In that hour the dictator will have to choose between the body which made him dictator and the people upon whom his leadership has been imposed whether by force or by persuasion.

It is a choice which comes, sooner or later, to almost every dictator. It came to Cromwell, weary of the tyranny of Puritanism in arms, who wanted to make himself King of England and would have done so had not the Ironsides prevented him. It came to

Robespierre when, sickening of the Terror, he tried to quell the Jacobins. The Jacobins destroyed him and historians ever since have pointed the moral that revolutions tend to eat their own children—an erroneous reading. It came later to Napoleon, when he felt himself being forced back upon the soldiers of the Revolution. He succeeded in bringing all the parties, including the soldiers of the Revolution, into subjection. One modern dictator is now experiencing the same choice and has turned against the old guard of the Communist party—successfully as it seems. Another a few years ago attacked and broke the old guard of his own party. The old guard of the Democratic Party in the United States continues to assert that the President has undermined the party's position and strength.

That these are events of great significance few will dispute. What do they mean? The dictator who refuses to obey his party and its backers can look for support in one direction only—namely, the nation. Only if he can secure the nation's support can he hope to survive.

* * *

It is matter of history that the support of nations is given to very few men and that these men bear, always, a close likeness to one another. That likeness does not reside in intellectual power, though intellect is usually highly developed. Rather it is an emotional quality of rare and potent nature by which a man is able to make himself the beloved and trusted of millions of his fellows. I do not doubt that Ibsen was right when he declared that only he who possesses the King-thought can exercise such power. In other words the power belongs to the leader and proceeds out from him to the people. Disraeli identified this power with love and looked upon Kingship, in consequence, as a marriage of one man to a nation. The King was the people's bridegroom. Like a bridegroom he was ready—and the people knew it—to sacrifice himself for them. His people called him lover and father and made his consecration manifest by anointing him with the sacrificial oil. "The grace of God in a King," said Pope Gregory the Great, "is the power to protect the sheep from the wolves. If a King does not possess that power he is without grace and is no King." Napoleon said the same thing in different words: "Without a King there is no people; there are only parties. The party with the most money wins when it has to reward its financial backers."

The King then is a leader who has wooed and won his people by virtue of his King-thought. This is no party dictator nor popularly elected party chief, but a being in ecstasy who, by mystical process of love, has ceased to care for self or safety and become father and comforter. Every notable man in the land will now be forced to serve the people, for King and people united are irresistible. For this reason symbolism set crowns also, the garlands of sacrifice, on noblemen's brows. For this reason noblemen who attempted to oppose the King, to seize their lands in absolute title, and to make of their folk serfs and chattels, were attacked by Majesty. For it was, as it is, the first business of a king to bend all the notable men, the barons, to the people's service.

There is the world of difference between Kingship in this real sense and representation. It is obvious that power cannot, in fact, originate with the people since, without leadership, the people is helpless and falls, always, into the hands of wolves. But it is equally obvious that without the people's love the King is helpless. King and people therefore are one, like father and children. It is the King who creates the people since it is his King-thought, his word, which is made flesh in them.

PANEL AND CONTRACT PRACTICE

The Practitioners' Fund

THE negotiations for an increased capitation fee as well as the controversy regarding the payment in respect of the 14–16 year adolescents has focused attention upon the capitation fee. There are few practitioners, if any, who receive from their insurance committee exactly nine shillings multiplied by the number of persons on their list in any year and, doubtless, many have wondered exactly how their remuneration is calculated. Many committees send out a detailed statement with each cheque, but this, after all, merely explains the distribution of the areal practitioners' fund and not how the fund itself is calculated. The chairman of the London medical benefit subcommittee has just answered a question on this subject at a meeting of the insurance committee, and his reply provides a concise statement of the method adopted in calculating the practitioners' fund.

The method by which the amount of the areal practitioners' fund is arrived at is broadly speaking as follows: Out of the sums available for medical benefit the central practitioners' fund is set up at the beginning of each year. It is calculated on an estimate made by the government actuary of the number of insured population entitled to medical benefit multiplied by 9*s*. The estimate is arrived at mainly on the basis of sales of health insurance stamps. The final amount of the central practitioners' fund is not known until after the end of the year, but each year the committee are notified during February of the amounts which may be distributed quarterly within the final determination of the fund. The balance usually becomes known towards the end of February in the succeeding year, and a final settlement is effected as soon as the necessary calculations can be completed.

The central practitioners' fund is distributed among insurance committee areas by the Minister of Health after considering the report of the medical distribution committee which consists of representatives of insurance practitioners, of insurance committees, of the government actuary, and of the Ministry. This committee have before them particulars as to the insured population in each area (this being based upon what is known as the count of the index register). It is their duty to make a fair and just apportionment of the total fund between the several areas. They take into consideration such factors as the incidence of temporary residents (this in London invariably means a deduction but in some areas it causes quite an appreciable addition). Deductions are also made in respect of insured persons obtaining medical benefit through approved institutions and making their own arrangements, and also for members of the mercantile marine. A final net proportion is then ascertained and the central practitioners' fund is distributed on this basis. The areal practitioners' fund has to be distributed among practitioners on the basis of their respective figures of credit, but even here there are various adjustments to be made—e.g., in respect of the administrative

expenditure of the local medical and panel committee and of payments to practitioners for the cost of the provision of anæsthetists and emergency treatment.

It will be clear that, although at the source the central practitioners' fund has been based on an estimate of the insured population multiplied by 9*s*., the areal practitioners' fund as calculated does not necessarily represent the local insured population multiplied by 9*s*.; it may be either above or below this figure. In the administrative county of London up to 1933 the unit value was actually less than the nominal 9*s*. value, but the clearance of the medical register, which took effect as from Jan. 1st, 1934, reduced the number of units of credit upon which practitioners' remuneration was based without affecting the calculation of the areal practitioners' fund. The result was that whereas for 1933 the value of a unit of credit in London was 7*s*. 11·46524*d*., in 1934 the equivalent value was 8*s*. 7·4932*d*. This was at a time when economy deductions were being made from the remuneration of practitioners. For the year 1935 the figure rose to 9*s*. 1·17192*d*., but this increase was accounted for mainly by the restoration of the economy deduction of 5 per cent. which operated only for the first six months of that year. For the year 1936 the total payment will amount to 9*s*. 2·5254*d*.

CORRESPONDENCE

AMBULANCES AND STRETCHERS

To the Editor of THE LANCET

SIR,—I am glad that Dr. Lockhart noticed my letter because it was *his* letter, published in your columns two years ago, which stimulated my interest in this subject.

I quite agree with him that the universal adoption of a standard stretcher with telescopic or folding handles would simplify our problem, but I do not think that the fighting services of any nation would agree. They would not consider such stretchers capable of standing up to the rough usages of war. I realise the great advantages of short stretchers when it comes to carrying them in lifts, railway-carriages, air-ambulances, and boats (we in the Navy have a short stretcher), but I cannot envisage the abolition of long stretchers and I still think that ambulances capable of carrying long or short stretchers should be adopted where practicable.

Standardisation of gauge, as Dr. Lockhart points out, is essential.

I am, Sir, yours faithfully,

R. A. W. FORD,
Surgeon-Commander, Royal Navy.

H.M.S. *Hood*, May 3rd.

INSULIN AND GASTRIC SECRETION

To the Editor of THE LANCET

SIR,—At a meeting at the Royal Society of Medicine on March 9th Prof. E. C. Dodds and Dr. R. L. Noble reported [1] observations on the action of insulin on the gastric secretion of cats. Having several years' experience with insulin as "meal" for fractional tests I should like to bring out the following points.

1. Insulin stimulates gastric secretion sufficiently to enable one to discriminate between pseudo-anacidity and true anacidity just as often as one can with histamine.

2. The stimulus to the stomach is the hypoglycæmia, acting through the vagus (as stated, for example, by Heller [2] and by Dodds and Noble,[1] but questioned by Meyer [3]). The test is therefore not suitable for diabetic patients.

3. Whereas histamine sometimes produces undesirable side-effects which may be difficult to overcome, the insulin test, using the doses stated below, rarely causes symptoms requiring treatment. In the few cases which developed hypoglycæmic symptoms that were at all serious I have nearly always been able to control them by oral administration of sugar, and it has very seldom been necessary to give intravenous glucose injections.

4. It is an advantage that the secretion obtained is not mixed with any fluid given as test stimulus.

5. The optimal amount of insulin was found to be 12–15 units (Heller [2]). The secretion starts about 20–40 minutes after intravenous (or about one hour after subcutaneous) injection. In patients with normal gastric secretion 55–75 are the highest values for free acidity, and 75–95 the highest values for total acidity.

6. The stimulating action of insulin on the gastric secretion shows that the administration of insulin is contra-indicated in fattening cures in patients with hyperacidity.

Each of these points has already been made by Meyer and/or Heller.

May I take this opportunity to remind your readers that in distinguishing hyper- from hypo-glycæmic coma a positive Babinski sign proves the coma to be hypoglycæmic. Whereas the differential diagnostic value of flaccidity in hyper-, and of spasticity in hypo-glycæmic, coma is mentioned in many text-books and papers, a reference to Babinski's sign is very rarely to be found.

I am, Sir, yours faithfully,

HERBERT LEVY.

Telford-avenue Mansions, S.W., May 1st.

[1] Dodds, E. C., and Noble, R. L. (1937) *Proc. R. Soc. Med.* **30**, 815; see also *Lancet*, March 20th, p. 692.
[2] Heller, H. (1931) *Med. Klinik*, **27**, 1451; (1931) *Z. ges. exp. Med.* **99**, 607.
[3] Meyer, P. F. (1930) *Klin. Wschr.* **9**, 1578.

PRURITUS ANI

To the Editor of THE LANCET

SIR,—Surgical news about pruritus ani is as attractive as it is varied, and the announcement in your issue of April 17th, of the "prepruritic stage of pruritus ani" is quite delightful. I suspect that Mr. Riddoch wrote his article with his tongue in his cheek, but he has allowed fiction so heavily to outweigh fact that some little protest must be entered. The œdema of the skin which might seem to give the stamp of reality to his theory is in fact the finding common to all itching and rubbed skins though it is more readily provoked in the skin of the genitalia and perineum and of the areolæ. It is not true that "itching is apt to occur more frequently about the various body orifices than elsewhere"; it is not even true of the vulva and anus, it is less true of the eyes, ears, nose, mouth, and urethra. Does Mr. Riddoch seriously suggest that X ray therapy is curative because of its destructive effect on the vessels? This is alarming.

With the courage characteristic of the surgeon he dismisses the psychological side of the problem, but Carlyle was wiser than Mr. Riddoch imagines. There is no doubt of the pleasure associated with itching, especially anal itching, as the majority of subjects with pruritus ani will confess. Indeed it is the

indulgence in this pleasure which too often creates the habit which is so difficult to break.

I am, Sir, yours faithfully,

Leeds, May 3rd. JOHN T. INGRAM.

To the Editor of THE LANCET

SIR,—In your last issue Dr. Browne-Carthew mentions that I did not refer to radium in the treatment of pruritus ani. I could not possibly mention all the various forms of treatment that have been tried in this condition and I have come across only one reference to the use of radium (O'Donovan, W. J. (1936) *Practitioner*, **136**, 148). However the fact that O'Donovan claims good results from its use, coupled with Dr. Browne-Carthew's remarks, lends further support to my thesis. Well over 90 per cent. of cases can be cleared up by the simpler method of sclerosing injections in the internal hæmorrhoidal area if these are efficiently carried out, and the remainder must be dealt with to suit the individual case, as for example when one has to stretch a fibrosed anal canal or remove tags or fibrosed internal hæmorrhoids, &c., as well as destroy the subcutaneous veins by undercutting of the skin, sclerosing injections, or possibly radium.

I am, Sir, yours faithfully,

Birmingham, May 4th. J. W. RIDDOCH.

PERNICIOUS ANÆMIA IN AN INFANT

To the Editor of THE LANCET

SIR,—I was interested to read in your issue of May 1st an account of a case of macrocytic anæmia which occurred in infancy in association with achlorhydria and high icterus index and which responded rapidly to treatment with liver. I venture to doubt however whether the authors are justified in labelling the case "pernicious anæmia," and I would suggest that it is one of subacute hæmolytic anæmia.

During the past few years macrocytosis has been recognised and described in an increasingly large number of disorders of the blood. In a series of hæmolytic anæmias in infancy and childhood admitted to the wards of the Birmingham Children's Hospital and to be published shortly, I have observed several examples of macrocytic anæmia some of which have failed to respond to transfusions of blood or the administration of iron. They have, however, reacted well to treatment with liver, as did the case described by Prof. Langmead and Dr. Doniach. In each case treatment with liver was discontinued after complete hæmatological recovery, but the anæmia did not relapse. This fact differentiates the pernicious-like picture of subacute and chronic hæmolytic anæmia from true Addisonian pernicious anæmia, for in the latter condition the anæmia will always recur unless sufficiently large doses of a potent liver preparation are given regularly. Time and further blood examinations alone will tell whether or not the case of Prof. Langmead and Dr. Doniach can be accepted as one of true pernicious anæmia of infancy. I am, Sir, yours faithfully,

W. CAREY SMALLWOOD.

The Children's Hospital, Birmingham, May 3rd.

PRISONERS AND CAPTIVES

To the Editor of THE LANCET

SIR,—I regret having to inform Dr. Masefield that I weighed my Grains and Scruples very carefully indeed. The result was disconcerting. However, I can relieve his distress in at any rate one respect: my criticism was, and is, directed at the system, not directly at any of my medical colleagues. The system does seem to me to be needlessly cruel, in that it shuts away indefinitely young people who are a danger neither to themselves nor to anybody else. And—this I feel acutely—few, not being official people, ever see the inside of the institutions referred to. Official people, however humanitarian, tend to become more and more official; specialists, however kindly, do come to look through ever-narrowing spectacles.

I know, from bitter experience, that it is infinitely more easy to get a young person into an institution for the mentally defective than it is to get him out. I am convinced that there are, at this minute, young people in such institutions who would be better in every way if they were outside. I interviewed one of them recently in an institution.

There are some of us who feel, strongly, that all is *not* well. That is why I wrote as I did, and why I hope to write further when, and where, the opportunity arises.

I am, Sir, yours faithfully,

April 30th. TADDYGADDY.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED APRIL 24TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1647; diphtheria, 1027; enteric fever, 32; pneumonia (primary or influenzal), 864; puerperal fever, 41; puerperal pyrexia, 114; cerebro-spinal fever, 23; acute poliomyelitis, 3; acute polio-encephalitis, 2; encephalitis lethargica, 4; dysentery, 33; ophthalmia neonatorum, 111. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on April 30th was 3146 which included: Scarlet fever, 846; diphtheria, 904; measles, 45; whooping-cough, 508; puerperal fever, 13 mothers (plus 10 babies); encephalitis lethargica, 284; poliomyelitis, 1. At St. Margaret's Hospital there were 21 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In 123 great towns, including London, there was no death from small-pox or from enteric fever, 12 (0) from measles, 5 (2) from scarlet fever, 22 (7) from whooping-cough, 30 (3) from diphtheria, 39 (12) from diarrhœa and enteritis under two years, and 47 (5) from influenza. The figures in parentheses are those for London itself.

Four deaths from measles were reported from Kingston-upon-Hull, 5 deaths from influenza at Birmingham. Liverpool had 4 deaths from diphtheria and 3 from Manchester. There were 4 deaths from diarrhœa and enteritis under two years at Birmingham and 3 at Newcastle-upon-Tyne.

The number of stillbirths notified during the week was 291 (corresponding to a rate of 41 per 1000 total births), including 53 in London.

MEDICAL CONFERENCE IN SWITZERLAND.—A third international medical week has been arranged by the *Schweizerische Medizinische Wochenschrift* and will be held at Interlaken from August 29th to Sept. 4th. The speakers will include Prof. Hugh Cairns (results of treatment of intracranial tumours); Prof. Clovis Vincent, Paris (treatment of subacute and chronic abscesses of the brain); Prof. O. Loewi, Graz (the chemical transmission of nerve stimulus); Prof. K. J. Anselmino, Wuppertal-Elberfeld (relation of the pituitary to carbohydrate metabolism and to diabetes); Prof. L. Lichtwitz, New York (disturbances in the regulation of carbohydrate metabolism); and Prof. H. Spemann, Freiburg-in-Breisgau. Further information may be had from the secretariat, Klosterberg 27, Basel.

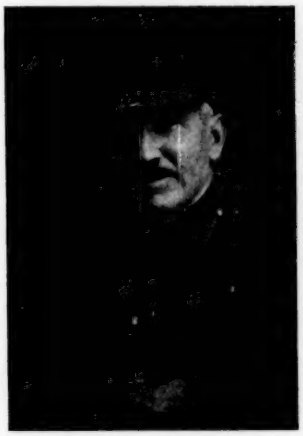
OBITUARY

SIR PATRICK HEHIR, K.C.I.E., F.R.C.P., F.R.C.S., F.R.S. Edin.

MAJOR-GENERAL, I.M.S.

Sir Patrick Hehir, who died on Saturday last, May 1st, at Hove, was a distinguished member of the Indian Medical Service, holding at different times high and responsible office and being deeply interested in both the social and scientific side of tropical medicine.

Patrick Hehir was the son of Robert Martin Hehir of Ennis, Co. Clare. He received his medical education in Edinburgh and at Guy's Hospital, qualified as M.R.C.S. Eng., L.S.A. in 1885, and took the diploma of F.R.C.S. Edin. in the same year. He graduated later as M.D. Brux. He joined the Indian Medical Service in 1886 and immediately saw service in Burma and Tirah. He was engaged in the latter campaign during 1897 and 1898 and received a medal with clasps. He was next serving on the Mohmund expedition, but in 1898 returned to Burma as Assistant Director of Medical Services. Shortly afterwards he was transferred to Poona, holding the same position in the Bombay presidency, while at the outbreak of the war he was at headquarters, Simla, as Deputy Director of Medical Services. He was therefore a very experienced officer when his eventful career during the war commenced. He was engaged in the campaign in Mesopotamia, and was several times mentioned in dispatches for his excellent work. At the surrender of Kut he was taken prisoner by the Turks and until his release did valuable work in caring for the sick and wounded, especially the Indian contingent. Released by the Turks he took up his appointment at headquarters in India as D.D.M.S., and in recognition of his fine work received the orders of C.B. and C.M.G. In the second Waziristan campaign he was again to the front as A.D.M.S., and in 1919 further hostilities in Afghanistan gave him an opportunity of earning credit, for he was mentioned in dispatches and promoted K.C.I.E., having received the C.I.E. the previous year.



SIR PATRICK HEHIR
[*Photograph by Elliott & Fry*

Throughout his long service in India Sir Patrick Hehir was engaged in efforts, scientific and social, to prevent and control malaria in India. He made many personal researches into the life-history of mosquitoes, and in 1910 produced his work "Prophylaxis of Malaria in India" in which he went with much detail into the methods employed by the malaria sanitarian in towns and cantonments. The results of this work, with many additions and with coöperation from numerous authorities, were published after his retirement in a comprehensive volume entitled "Malaria in India." This book, not issued until 1927, detailed the general history of malaria, its geographical distribution in India, its contributory causes, prevalence, and mortality. It furnished a very full history of the habits of Indian anophelinæ, this section of the work being supplied with a large quantity of admirable illustrations. The clinical history and diagnosis of malarial fevers and the various methods of prevention were all set out, and among a group of appendices important matter was added bringing the subject up to date. The work was the outcome of much personal knowledge and great industry, calling the attention of the economists and statesmen to the many sides of a menacing problem. Its production was a fine exploit during the closing years of a distinguished career.

Sir Patrick Hehir, in addition to the distinctions enumerated, possessed the life-saving medal of St. John of Jerusalem, was a Knight of Grace of the Order, and a F.R.S. Edin. He married in 1908 Dora, a grand-daughter of Edward Lloyd, who founded the *Daily Chronicle*, by whom he had one daughter. He was in his 78th year at the time of his death.

GEORGE PARKER, M.D. Camb.

WE regret to announce the death of Dr. George Parker, consulting physician to the Bristol General Hospital and a physician of distinction well known outside his immediate circle.

He was born at Claverdon, Warwick, the son of Mr. George Parker. He was educated at Stratford-on-Avon and St. John's College, Cambridge, where he had a successful academic career, graduating as B.A. in 1877, with honours in the History and Moral Science Triposes. He was an assistant master at Rugby for a short period and then went to St. Bartholomew's Hospital for medical training. He graduated as M.B. Camb. in 1880, proceeding to the M.D. degree in 1884. He followed a post-graduate course in Vienna and held several resident appointments, being medical officer to the Paddington Green Children's Dispensary and the Bristol Dispensary before going into practice in Clifton in 1887. He was appointed assistant physician to the Bristol General Hospital in 1892, and was a member of the staff until his retirement on seniority and election as consulting physician. He was an important member of the University of Bristol, lecturing in particular on medical jurisprudence, a subject in which he was also an examiner at the University. He had marked literary gifts, wrote a history of surgery in Great Britain, showing his antiquarian knowledge and delivered the Thomas Vicary lecture before the Royal College of Surgeons of England.

We owe to Dr. J. A. Birrell the following appreciation: "During the years 1892–1920 of his association with the Bristol General Hospital as assistant and full physician, his friendly personality endeared him to all with whom he came in contact—perhaps one would not say for forcefulness of character but rather for the frankness of his nature and approachability was he so liked. He was appointed to the visiting staff of the Bristol General Hospital in 1892, becoming full physician in 1901. He was president of the Association of Physicians when that body met in Bristol, and of the Bristol Medico-Chirurgical Society in 1915–16. Being particularly interested in the various manifestations of chronic rheumatism and osteo-arthritis he had charge of the

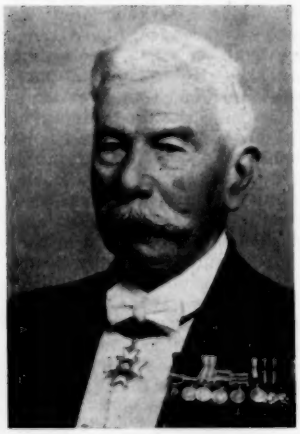
physiotherapy department of the hospital from 1901 until his retirement, doing much work, and making contributions to literature, upon these maladies. As a consultant he came to be regarded as always giving of his best, with a most likeable unaffected straightforwardness, and would spare no pains to do the utmost for the patients coming under his supervision, often, as the nature of their ailments so frequently required, for lengthy periods. For many years he had a very large following of out-patients, by whom he was greatly beloved for the individual interest and sympathy which he extended.

"Outside his work he was keenly interested in archæology, and, since his retirement from the active hospital staff, went out on several occasions as medical officer to the Flinders Petrie Expedition in Syria. Of late years, too, he became greatly interested in the University medical library, acting as honorary librarian until his death. With great courage he persisted in his activities in spite of a progressing physical enfeeblement leading to the end. His death is a sad loss to many; his contemporaries and a host of others will retain affectionate memories of him."

JOHN DALLAS EDGE, C.B., M.D. R.U.I., F.R.C.S.I.

MAJOR-GENERAL, R.A.M.C.

THE death occurred on May 1st at his home in Dublin, at an advanced age, of Major-General John Dallas Edge, whose military record was a remarkably fine one. He was born in 1848, the son of the late Joseph Edge of Timahoe, Queen's County, and received his medical education at the Meath Hospital, Dublin, graduating as M.D. R.U.I. in 1870. He entered the Royal Army Medical Corps at once and was attached to the 1st West India Regiment. The regiment was stationed at Orange Walk, British Honduras, and shortly became the centre of a fierce little Indian revolt. The military commander was wounded, and young Edge took his place and successfully organised the defence, being specially promoted for gallantry. In the Zulu war of 1879 and in the second Afghan war which followed rapidly, Edge was again in the thick of the fighting, and for his work at Maiwand and Kandahar he received the thanks of the Government of India. In 1882 he was serving in Lord Wolseley's expedition to Egypt, was present at Tel-el-Kebir, and was again a marked man for the value and bravery of his services. He received the Tel-el-Kebir medal with clasp and the Khedive's star. The outbreak of the South African war found Edge a lieutenant-colonel and with that rank he accompanied Sir Redvers Buller's army to Natal. He was present at the battle of Stormberg and was responsible for removing the bulk of the wounded from the field in circumstances which required much and determined bravery. He was promoted colonel, awarded the C.B., and at the end of the war was appointed P.M.O. of the South African Command. On return home he became P.M.O. of the Irish Command and retired in 1908 on the age-limit. At the outbreak of the European war he volunteered for service despite his seniority, and was placed in charge of the Queen Alexandra Military Hospital with the rank of major-general, a post which he held until his second retirement in 1917.



MAJOR-GENERAL EDGE
[Photograph by Elliott & Fry

Major-General Edge married in 1890 Jane, daughter of John Ruskell of Arklow, Co. Wicklow, by whom he had one son. He had reached his ninetieth year.

JOHN GALLETLY, M.B., C.M. Edin.

THE death occurred on April 10th of Dr. John Galletly, well known in South Lincolnshire for his activities in the promotion of public health. He graduated as M.B., C.M. in the University of Edinburgh in 1886, having already studied at Marburg and at Vienna. He then went into practice in South Lincolnshire where he remained until his death 48 years later. In 1895 he took the D.P.H. Camb. and was appointed M.O.H. to the Bourne R.D., following on an inquiry into the sanitary conditions in those parts of Kesteven. Thanks largely to his persistent and patient endeavours the area was transformed from the worst to the best in the county. An isolation hospital was provided and new schemes for housing and water-supply devised, so that when following the war, a progressive drive was made the ground was well prepared. Throughout Galletly by a fine example showed what the work of a part-time medical officer can produce when an independent spirit is backed by an intimate knowledge of the conditions and the people in his area.

We have received the following personal tribute: "A well-grounded scholar in the humanities, Dr. Galletly was fond of reading and of travelling. He was of the old school of general practitioner, hard working and finding his hobby in his work. He gave his best to his patients, never sparing himself and being always ready to take up the cudgels on their behalf when officialdom pressed. Impatient of humbug or conceit, he was loyalty itself to his fellow-colleagues. He excelled in midwifery and had the art and knowledge and massive experience of a lifetime behind him, to help and guide and teach those that followed him. He was of a retiring disposition, but his integrity, kindliness, and generosity made him the friend of all who came to seek help at his hands."

LUKE GERALD DILLON, O.B.E., M.D. R.U.I., M.Ch.

Dr. Luke Dillon, who died on April 27th, was a son of Charles Blake Dillon of Springlawn, Co. Roscommon. He received his medical education at Queen's University, Dublin, where he graduated as M.D. R.U.I. and M.Ch. in 1882. His career was spent largely in Seaham where he was at one time medical officer of health to the U.D.C. He was also surgeon to the Seaham Harbour Infirmary, Admiralty surgeon, and at one time surgeon to the Londonderry Collieries. He served during the war as a major, R.A.M.C. (T.), and received the O.B.E. He was a man of wide interests, a F.S.A., and a J.P. for the county of Durham. He married Elizabeth Mary, daughter of the Hon. Hubert Dormer, by whom he had one son. Dr. Dillon had an interesting pedigree, being descended from Theobald Viscount Dillon, who was born in the Tower of London in

1591 and who in 1642 took the Oath of Association with the Irish Confederation. Dr. Dillon had retired from the profession for some time before his death, which occurred at Oxford.

HERBERT VICTOR HORSFALL, M.B., Ch.B. Leeds

THE death took place on April 18th of Dr. Herbert Horsfall at the early age of 42. He was the son of the late Mr. A. W. Horsfall of Halifax, and received his medical training at Leeds University. He graduated as M.B., Ch.B. Leeds in 1917 and acted as house surgeon and resident surgical officer to the Leeds General Infirmary. During the war he served as medical officer to a combatant unit in East Africa, holding the rank of captain. Thereafter he was in practice for a time at Cleckheaton, after which he went into partnership in Otley. While at Otley he was actively associated with the Otley St. John Ambulance Association. He became medical officer to the New Hall Infirmary and held a high place socially in the Otley district. His death was unexpected, as he was in the prime of middle life, but he had been in failing health for some time.

HENRY PRESCOT FAIRLIE, M.D. Glasg.

THE death occurred at the end of March of Dr. H. P. Fairlie, the well-known Glasgow anæsthetist. He was president of the section of anæsthetics of the Royal Society of Medicine, 1933–34, and was a valued member of the council of the Association of Anæsthetists, as well as of the editorial board of the *British Journal of Anæsthesia*. These offices had brought him into contact with many anæsthetists in London and the result had always been to establish in them warm feelings of friendship.

A correspondent writes: "Fairlie's professional excellence was accompanied by an unusual degree of modesty and charm. His text-book, written in elaboration of Ross's work, was widely read and esteemed. He may well be regarded as one of the pioneers of modern anæsthetics in Glasgow. His example and his teaching did much to break down a traditional adherence to the routine use of chloroform and Fairlie fearlessly exposed the ill results which this practice had inflicted in the city where he practised. He contributed freely to the periodic literature of his subject and his writing was always free from padding and of practical value. His death is a severe loss to anæsthetics in general and leaves many English friends and colleagues the poorer."

JOHN LUKE JACKSON, M.B., B.Ch. Belfast

THE death occurred on April 5th of Dr. J. L. Jackson, medical superintendent of the Knowle Mental Hospital, Fareham. He received his medical training at the Queen's University, Belfast, and graduated with honours as M.B., B.Ch. Belfast in 1910. He showed early his interest in psychological medicine, and shortly after qualification was appointed as assistant medical officer to the Knowle Mental Hospital. At the outbreak of war he joined the R.A.M.C. and had an eventful military career, seeing service in France and Gallipoli and receiving the Croix de Guerre. He had the unpleasant experience of being for a time a prisoner of war. On the cessation of hostilities he returned to his appointment at the Knowle Mental Hospital, and became medical superintendent in 1922. He was principal medical adviser to the Hants Joint Mental Health Institutions Committee and earned the reputation from all with whom he came into contact of being an energetic and sound administrator.

PARLIAMENTARY INTELLIGENCE

MILK PASTEURISATION

THE POOLE EXPERIMENT

IN the House of Lords on April 22nd, on the motion of Lord MARKS, the Poole Corporation Bill was read a second time.

An Opponent of the Bill

Lord CRANWORTH moved that it be an instruction to the committee to which the Bill might be referred to strike out Clause 21 (by-laws as to pasteurisation, &c., of milk). He said that this Bill raised a matter of grave national importance and he had always understood that a matter of general principle should never be brought forward in a private Bill. Such powers as were asked for in this Bill had never before been given or asked for in England. If Parliament granted such powers in this case it would seem logically impossible to refuse them in any other. The real reason for bringing Clause 21 into this huge Bill of 52 clauses was an outbreak of typhoid in Bournemouth, Poole, and Christchurch. It was therefore admittedly panic legislation, and for that reason somewhat to be deprecated. He had been at some pains to find out whether milk really was responsible for that outbreak; the Poole corporation said it was, but his local informants had told him that in their opinion it was not. The Dorset County Council were opposed to the Bill.

The main effects of pasteurisation were four. (1) It killed most of the obnoxious germs in milk. (2) It enabled dirty milk to keep for three or four days, whereas otherwise it turned sour after about twelve hours—which was in itself rather a safeguard to the public. (3) It put out of action all small producer-retailers because they had not the money to provide the necessary plant to do their own pasteurising. (4) Most important of all (he thought) it devitalised the milk and destroyed some of its component parts. It remained a very good beverage, but it did not remain milk, and not such a good substance as milk, and that was the reason why another large section of the medical profession, and a very much larger section of milk drinkers, preferred raw milk.

If properly treated pasteurised milk was quite safe immediately after it had been pasteurised. But it was not always properly treated. Further pasteurised milk was subject to recontamination not only as quickly as raw milk, but even more quickly. Generally speaking, the reason for pasteurisation was said to be the prevention of tuberculosis. But many more people suffered and died from tuberculosis through not drinking milk at all than those who suffered from drinking bad milk. In the country districts, where pasteurised milk was unobtainable, not only was there less tuberculosis but tuberculosis had gone down in a greater degree than in the towns.

The Diseases of Animals Committee said that if vitamin C was destroyed it could be returned by giving the children lime-juice or orange-juice. Did their lordships think that in the poorer parts of our great cities the children were going to get orange-juice or lime-juice whenever they got a glass of milk? The loss in the milk through pasteurisation was first in vitamin C, the loss of which caused scurvy, and secondly, in vitamin D, a loss which caused rickets. The chief medical officer of Dr. Barnardo's Homes, Dr. A. H. Macdonald, had made an exhaustive

study of this subject and had come to the following conclusions :—

"(*a*) The child on raw milk is very fit. (*b*) Chilblains are practically eliminated. (*c*) The teeth are less likely to decay. (*d*) The resistance to tuberculosis and other infections is raised. (*e*) In one of his homes containing 750 delicate boys who were fed on raw milk for five years, only one case of non-pulmonary tuberculosis occurred, while in the preceding five years with similar types of children fed on pasteurised milk fourteen cases of non-pulmonary tuberculosis occurred."

There might be a case, said Lord Cranworth, for prohibiting the sale of unclean milk unless it had been pasteurised, but there was an equally good case, where clean milk was available, why it should not be pasteurised at all. The farmer had been asked to clean up his milk. He had been forced to spend large sums of money. He had been induced to have a new system, a higher grade of milk, and under the Accredited Scheme no fewer than 20,000 herds already participated. Were they going to take the retrograde step of saying that all this expenditure had been unnecessary, and say in effect "Produce as dirty milk as you like so long as you put it in the pasteurisation plant, when it will be just as good as the other"? Pasteurised milk could now be obtained wherever it was asked for. In Poole 80 per cent. got it. He could not see why people who disapproved of pasteurisation should be forced to do something which they believed to be to the harm of their children.

A very grave step was proposed in this clause. Surely if it was right, the Government should set up a committee—not a committee of producers or distributors, nor yet of doctors, but a committee of good common-sense people accustomed to weigh evidence—and ask them to present a report. Then let the Government, after consideration, produce the necessary legislation.

Case for Local Legislation

Lord MARKS said that anyone who had lived, as he had done, through the recent typhoid epidemic, when 900 people were affected and 51 died, would not imagine that the Poole corporation were doing anything panicky but were simply doing their duty in trying to ensure that such an epidemic should not occur again. Milk might be clean but not safe, and what the Poole corporation was seeking to do was to make the milk not only clean but safe. It had been suggested that they should put this off until the Government brought in a measure to deal with the whole community. If that were done, the Government would find themselves up against difficulties that they were not up against in this Bill. What might be done easily for a municipality with 500,000 people would be a very difficult and doubtful thing to do for a village with 200 or less. Their lordships had already given a Second Reading to the Glasgow Corporation Bill which contained a similar clause. There was no petition to the House against it, and no memorials against it, but 44 municipalities in England and Scotland had sent to the Ministry of Health memorials and petitions in favour of Clause 21 of this Bill, which it was now said should be deleted.

A Government Bill Promised

Viscount HALIFAX, Lord Privy Seal, speaking for the Government, said that the report of the Economic Advisory Council's Committee on Cattle Diseases, presided over by Sir Gowland Hopkins, made certain recommendations which did not correspond with the proposals in the Bill promoted on behalf of Poole. He understood that if this Bill received a second reading in its present form it would be referred to a Select Committee of the House so that the proposals as to pasteurisation might be specially examined. In the Government's view such an inquiry would be unsatisfactory and probably inconclusive. Such an inquiry ought not to be held in connexion with any particular locality, for the question was general, affecting the country as a whole. The Government's intention therefore was to bring forward long-term legislation dealing with general milk policy in the near future. In that connexion the question of pasteurisation would be examined in the light of all the evidence available. When the proposals were brought forward Parliament would have opportunities for examining them in a form more satisfactory than was open to it at the present time. There was no reason for supposing that in the absence of compulsory pasteurisation the people of Poole would be in any different position as regarded the possibility of infected milk from that of persons in any other part of the country. Therefore, pending general legislation, there seemed to be no necessity to make special provisions in the case of Poole in order to prevent a recurrence of the outbreak the town had experienced.

The Earl of ONSLOW (chairman of committees) said he did not think it would be fitting to hold a long inquiry by a Select Committee into the question of pasteurisation, which had already had so many committees sitting on it. In the absence of any special necessity in Poole, the matter might safely be left to be dealt with by Public Bill.

Lord Dawson's Speech

Viscount DAWSON OF PENN said that the Poole experiment would have been very valuable. No indication had been given as to how long it would be before a general measure came before them. This matter had been under consideration for the whole of the century, and the position was really grave. Lord Cranworth was confusing clean and infected milk. Milk might be perfectly clean and yet be infected. On the other hand, it might be uninfected and yet not be clean. He entirely agreed with Lord Cranworth that if pasteurisation was not to be efficient it would be better not to have it at all. But here was no question of using pasteurisation except effectively; and there was an overwhelming body of evidence that if it was carried out effectively pasteurisation prevented the conveyance of certain infectious diseases.

The mortality from tuberculosis had steadily declined; but there was one blot on the picture—namely, that there had not been the same improvement in the bovine type of infection as in the human type. In 1931 in this country there were 6000 fresh cases of milk tubercle, with 2600 deaths—a perfectly needless death-rate. It had to be remembered that milk tubercle attacked not only the weaklings, but also the strongest children; therefore they were wasting 2600 children that need not be sacrificed. In Scotland, for the same year, there were 1000 children affected and 465 deaths. By not dealing with this matter they were continuing this death-rate. There was a satisfactory movement for extending the supply of milk to children. But this made it doubly important to see that the milk-supply was clean and free from infection. He entirely agreed that it must be made clean: it would be the duty of the medical officer of health of Poole to see that it was clean. But the worst of this tubercle was that tuberculosis in cattle might occur in apparently healthy cows. The Department of Health in Scotland took the churns which went into one city and found that 10 per cent. of the samples contained not dead but living tubercle bacilli, so that every time a child drank a glass of milk—a child at its most susceptible age—it was likely to be imbibing tubercle bacilli. In Glasgow, over 13 per cent. of the samples contained living bacilli, and therefore each glass of milk was an active source of infection to the children. Mention had already been made of the Bournemouth outbreak, and the deplorable number of deaths which occurred. There were others. It might almost be asked, in the words spoken of Pharoah: "How much persuasion does he require to let the people go?" In Brighton and Hove there was an outbreak in

1929 of septic sore-throat, due to milk infection subsequently to its being withdrawn from the cow. A thousand families were affected, and there were 65 deaths. Then there was the Epping epidemic of paratyphoid in 1931 with 260 cases, and there was the famous Chelmsford epidemic of scarlet fever and sore-throat, in 1935, with its 1600 cases, and then followed this Bournemouth outbreak. Therefore it must be realised that milk might be perfectly clean and still be infected owing to handling subsequently to being milked from the cow. He was bringing this matter forward really to stress the urgency of this problem—that if it was not desirable to allow Poole to work this out on a small scale and prove it, yet it was an urgent matter which should be brought to an issue.

If they could secure that milk should be controlled and that herds should be perfectly healthy, that would be the ideal way of dealing with this question, but it was impracticable except in a few selected spots. The expense of making good all the tuberculous cows in this country was one that no reasonable Government could face. For these reasons, therefore, protected herds could only be few in number, and could be maintained only where conditions were very favourable. In Denmark they did allow raw milk to go to children, but for the rest of the population they insisted on milk being pasteurised. But the raw milk that went to the children—less than 20 per cent. of the total—had to go to specially controlled dairies. A further reason for pasteurisation was that even when milk was free from tubercle bacilli, it was still liable to get infected by handling. The Bournemouth, Epping, and Chelmsford epidemics were all due to infection reaching the milk after it was taken from the cow. That was why he saw no alternative to a properly organised system for pasteurising milk. He sympathised with the one-sixth of the milk producer-salesmen in the country who would suffer. It would be a change for them to have to pasteurise the milk, but they could imitate Denmark and go in for coöperation. Or, if necessary, they should be compensated. The price would be a very small one to pay. He could not see what good it was to spend vast sums on health services and leave this bad sore open year after year.

In conclusion, Lord Dawson said he very much regretted that this experiment could not be made in Glasgow and in Poole, so that when the Government came to consider their more general legislation (and they had no information as to when that would be) they would have gained some experience.

The Debate Concludes

Lord STRABOLGI said that the Medical Committee which advised the London County Council were very anxious that the powers in Clause 21 should be given to the Poole corporation. When were they to expect this legislation of the Government? He understood that the time-table was already overcrowded. They had had a great deal of talk recently about malnutrition and the health of the population; they had a special committee to consider how to improve the physical fitness of the people; and here was an attempt to stop at its source a cause of sickness and death. Yet Lord Halifax said they must wait until the whole matter had been examined once more and a general Bill was introduced for the whole country.

Lord CROMWELL wished to correct any impression that the House generally accepted the principle that pasteurisation must come sometime and that the only issue at this stage was whether it should be introduced through a local authority or by the Government. He regarded the pasteurisation of milk as a very doubtful cure at its very best.

Lord MARKS said that if the Bill were taken as an opposed Bill it would entail considerable expense. The Poole corporation would be satisfied for it to pass with the instruction to the committee that Clause 21 should be deleted.

The motion to delete Clause 21 was agreed to.

MATERNITY SERVICES IN SCOTLAND

In the House of Lords on April 27th Lord STRATHCONA and MOUNT ROYAL moved the second reading of the Maternity Services (Scotland) Bill. It covered, he said, a wider field than the English Midwives Act of last year. Scottish medical men took a much larger part in midwifery practice than their English confrères, and the Bill was therefore not limited to a midwife service only. It proposed that any woman who desired to be confined in her own home would be entitled to the services of a midwife and a doctor. If the need arose, the doctor could call for the advice or help of an obstetrician of recognised standing. A thorough system of antenatal and post natal care would be a fundamental feature of the scheme. Local authorities would be free to select the type of arrangements they preferred so long as the services were adequate. In some areas medical arrangements—other than those relating to obstetricians—might be made with all general practitioners in the area who were willing to take service on the terms offered. In other areas the antenatal and postnatal examinations might be carried out at the authority's clinics, and arrangements made either with all practitioners or with a limited number of them to provide the intranatal service. No insuperable difficulty was anticipated in securing the services of qualified obstetricians in most areas, but adjoining areas might sometimes find it desirable to combine for the purpose. The local authorities were required to consult with any local organisation representing the medical practitioners in the area before submitting their proposals for the Department's approval. The remuneration of midwives and doctors participating in the service would be a matter for negotiation between them and the local authorities. One of the beneficial aspects of the scheme would be the elimination of "bad debts," which had been a source of much worry, particularly to midwives.

Clause 6, the object of which was to prevent the attendance of unqualified persons on women in childbirth, contained a proviso excepting from the prohibition medical students and pupil midwives attending as part of their course of training. Fears had been expressed about this permission but the department was assured that the arrangements for training in every Scottish university were such as to ensure the safety of the patients. It was clear that neither medical students nor pupil midwives were sent out to the homes of the people until they had been properly tested in the maternity ward, and had satisfied their teachers that they could be trusted with outside cases.

Lord STRABOLGI welcomed the Bill which he said was a very long step towards a State medical service. It was a very much larger step than was contemplated for England, and he congratulated the Scottish Office upon its courage in introducing the Bill.

The Bill was read a second time.

NOTES ON CURRENT TOPICS

In the House of Lords on May 4th the Hydrogen Cyanide (Fumigation) Bill, on the motion of the Marquess of DUFFERIN and AVA, was read the third time and passed. On the same day the Maternity Services (Scotland) Bill passed through committee without amendment.

In the House of Commons on May 4th Sir KINGSLEY WOOD, Minister of Health, introduced the Local Government Superannuation Bill, a measure to make further and better provision with respect to the payment of superannuation allowances and gratuities by local authorities and certain statutory undertakers, and with respect to the persons entitled to participate in the benefits of a local authority's superannuation fund or scheme. The Bill was read a first time.

QUESTION TIME

WEDNESDAY, APRIL 28TH

Mouthpieces of Public Telephones

Colonel GOODMAN asked the Postmaster-General what action was taken to cleanse the mouthpieces of the instruments in public telephone boxes, and at what intervals.—Sir W. WOMERSLEY, Assistant Postmaster-General, replied: The mouthpieces and earpieces of telephones in call offices provided with an attendant are wiped with a clean cloth moistened with suitable disinfectant every morning. At other call offices the frequency depends on the location of the kiosk and the extent to which it used.

Colonel GOODMAN: If no official is handy are these call offices' mouthpieces ever disinfected?

Sir W. WOMERSLEY: A full investigation has been made into this question by a committee upon which medical men sat and their decision was that the infection was more psychological than actual. (Laughter.)

Mr. THORNE: Can the hon. Member give any guarantee that everybody's mouth is clean before using the telephone?

Sir W. WOMERSLEY: I will leave that to my hon. friend.

THURSDAY, APRIL 29TH.

The Birching of Juvenile Offenders

Mr. SHORT asked the Home Secretary if he was aware that a further six boys were ordered to be birched by the West Riding juvenile court, Doncaster, on April 21st; whether the sentences had been carried out; and whether he would now reconsider his decision not to advise magistrates not to impose such sentences having regard to the appointment of the committee of inquiry.—Sir JOHN SIMON replied: Yes, Sir. Six boys were ordered on April 21st to be birched; five have been birched and the police surgeon found that the sixth was unfit for the punishment. I cannot do more than say that I am sure that justices will realise that I regard the whole subject as one which needs investigation.

Mr. T. WILLIAMS: Is the right hon. gentleman aware that the boy who was not fit to be birched on the day when the other five were birched has been invited to attend the police-court on Tuesday next to be birched? Does the right hon. gentleman regard it as consistent with the law for a boy to be sent home and be called upon to return a week later to receive his birching?

Sir J. SIMON: I do not know the circumstances to which the hon. Member refers but will make inquiries.

Mr. SHORT: Would the right hon. gentleman send a circular to clerks of the peace calling their attention to the fact that he has set up this committee of inquiry?

Sir J. SIMON: I could not do that; the fact is perfectly well known, and I think that when an inquiry has been set up it is very essential that the authorities should not seem to pronounce judgment before the inquiry is completed.

Training of Blind Children

Sir WILLIAM JENKINS asked the President of the Board of Education if he had any record of the number of blind boys and girls who, on leaving school, were being trained for some trade or any other occupation, and the number of these wholly employed for the years 1935 and 1936 in England and Wales, separately.—Mr. OLIVER STANLEY replied: It is estimated that at present the number of blind boys and girls, as distinct from the partially sighted, who leave the schools for the blind each year at the age of 16 is about 200. The Board do not have a statistical record, but it is known that practically all of these who are likely to be employable enter vocational courses of training. On March 31st, 1936, the total number of boys and girls from schools for the blind who were being trained was 693. The Board have no statistics concerning the employment of the blind, which is a matter for my right hon. friend the Minister of Health.

Sir WILLIAM JENKINS asked the President of the Board of Education what was the number recorded of borderline cases of pupils in schools for the blind; and was the test for certification of blindness causing a hardship on certain types of children who were educationally blind, but on reaching a certain age were marked sighted for industrial purposes.—Mr. OLIVER STANLEY replied: The Board have no statistical record of the number of such cases, but I agree with the conclusion of the Committee on Partially Sighted Children that such children should be taught in schools or classes for partially sighted children and that hardship is involved if they are educated and brought up as blind and have later to enter the sighted world, for which their education has not fitted them.

Hospital Arrangements in Staffordshire

Mr. MANDER asked the Minister of Health the present position with regard to the protests against the arrangements made by the Staffordshire County Council in Wednesfield, Willenhall, and other districts for the treatment of invalids and old people; and whether he would endeavour to arrange that negotiations should be reopened between the Staffordshire County Council and the Wolverhampton Borough Council, with a view to arrangements being made for Wednesfield and Willenhall residents to have the same facilities for obtaining treatment at the New Cross institution as were possible prior to April 1st, 1937.—Sir KINGSLEY WOOD replied: I would refer the hon. Member to the answer which I gave to his question about these arrangements on April 8th. I am in communication with the county council regarding the representations which I have since received on this subject, and will inform him further of the position when I have received their reply.

Mr. MANDER: Will the right hon. gentleman bear in mind that there is still plenty of room in the New Cross institution where invalids can go in a few minutes instead of having to travel 14 miles to Wordsley?

Sir K. WOOD: Yes, Sir.

Old Age Pensioners in Poor-law and Mental Hospitals

Mr. LEACH asked the Secretary to the Treasury if he had considered the copy sent to him of a resolution of the Eastbourne pensions committee, and supported by other committees, asking for a reform of the old age pensions law so as to provide a fairer method of calculating the means of persons who had been inmates of poor-law institutions or mental hospitals; and if he was prepared to comply with the wishes so expressed.—Lieut.-Colonel COLVILLE replied: The resolution to which the hon. Member refers is presumably that which asked that the cost of maintenance should be excluded in calculating the means of a pensioner who is in a poor-law institution for medical or surgical treatment and that the disqualification in certain circumstances from receipt of pension of a person in a mental hospital should be removed and the cost of his maintenance there disregarded in calculating his pension. This would have the effect of giving the pensioner free maintenance as well as a pension calculated on the basis that he is maintaining himself; and in so far as the pension is appropriated by the local authority, it would operate merely as a grant in aid of local expenditure. I am afraid, therefore, that the Government are not prepared to introduce the legislation which would be necessary to effect these changes.

Mr. LEACH: Is it not reasonably argued that old age pensioners who need medical or mental treatment of this sort are in such poor conditions and circumstances that they should have this concession made by the Government?

Lieut.-Colonel COLVILLE: I have given the hon. Member a long and careful answer and I am afraid I cannot add to it.

MONDAY, MAY 3RD

Health Insurance and Maternity Benefit

Mr. DE ROTHSCHILD asked the Minister of Health whether he would introduce legislation to amend the National Health Insurance Acts so as to increase the amount of maternity benefit payable by approved societies, seeing that the Midwives Act, 1936, by making compulsory the attendance of a qualified midwife at all confinements, threw an added financial burden on insured contributors at such times.—Mr. HUDSON, Parliamentary Secretary to the Ministry of Health, replied: The position of a woman entitled to maternity benefit as regards the arrangements for attendance at her confinement is not materially affected by the provisions of the Midwives

Act, 1936. The National Health Insurance Acts have always contemplated that such a woman should be attended either by a medical practitioner or a qualified midwife. Moreover, the Midwives Act expressly provides that the fees charged by local authorities for the services of their midwives may be remitted in whole or in part where the circumstances justify such remission. My right hon. friend does not, therefore, consider that the coming into operation of the new Midwives Act affords any reason for the suggested amendment of the National Health Insurance Act.

TUESDAY, MAY 4TH

Prevention of Silicosis

Mr. JAMES GRIFFITHS asked the Secretary for Mines the precise nature of the preventive measures that had so substantially reduced the incidence of silicosis in the Rand mines; whether these preventive measures were made obligatory upon the Rand mine-owners by statute or regulations; in how many collieries in Great Britain and South Wales, respectively, these preventive measures were in use; and whether he proposed to issue the regulations to make their adoption obligatory upon the mines of this country.—Capt. CROOKSHANK replied: In South Africa those mines which are scheduled under the Miners' Phthisis Benefits Law are subject to regulations requiring special preventive measures to be taken. I cannot, within the limits of an answer, state those preventive measures precisely, but the general purport is to provide for initial and periodical medical examination of persons exposed to the risk and for the suppression of harmful dust which might be breathed by such workers. I have not sufficient statistical information to enable me to answer the third part of the question. As regards the fourth part, the South African regulations apply only to the scheduled mines which, generally, I understand, are the metalliferous and not the coal-mines; and, as at present advised, I do not propose, as regards the coal-mines of this country, to displace the method of differentiating requirements according to risk in favour of applying the same requirements to all these mines. The whole matter is, however, under consideration by the Royal Commission now sitting.

Maternal Mortality

Mr. GEORGE GRIFFITHS asked the Minister of Health the number of deaths in childbirth for 1936, and the number of deaths arising out of childbirth for 1936.—Mr. HUDSON, Parliamentary Secretary to the Ministry of Health, replied: For 1936 the deaths classified to pregnancy and childbearing were 2302, while the deaths not classified to those causes but returned as associated therewith were 677. These figures relate to England and Wales, and are provisional.

Typhoid Fever in Liverpool

Mr. GROVES asked the Minister of Health how many cases of typhoid fever had been notified at Liverpool this year; and whether the outbreak was now at an end.—Sir KINGSLEY WOOD replied: 123 cases of typhoid fever (including paratyphoid) have been notified in Liverpool during the present year up to April 24th, the majority of which occurred in an outbreak of paratyphoid fever in January. I am informed that that outbreak is regarded by the local authority as being now at an end.

Employment of Boys in Coal-mines

Mr. TINKER asked the Secretary for Mines how many boys there were under 16 years of age working underground in coal-mines that come under his department.—Capt. CROOKSHANK replied: At Dec. 12th, 1936, the latest date for which the information is available, 17,044 boys under 16 years of age were employed below ground in coal-mines in Great Britain.

Experiments on Living Animals

Mr. LEACH asked the Home Secretary how many inoculations had been performed in contravention of the Cruelty to Animals Act, 1876, by the experimenter referred to in the Home Office Return of Experiments on Living Animals for 1935; and what period of time had been covered by the illegal inoculations.—Mr. GEOFFREY LLOYD, Under-Secretary, Home Office, replied: 14, and all were given on the same day.

THE LANCET 100 YEARS AGO

May 13th, 1837, p. 264.

FROM THE EVIDENCE RELATING TO THE MEDICAL RELIEF OF THE SICK POOR IN THE PAROCHIAL UNIONS, given before the SELECT COMMITTEE OF THE HOUSE OF COMMONS, in 1837. Tenth Day. Wednesday, April 14. Mr. Fazakerley in the Chair.

MR. THOMAS BOURNE.

4324. *Examined by* the Chairman.] You are master of the Fareham workhouse?—Yes.

4328. In what state were the boys Cooke, Warren, and Withers, when they were sent to you?—They appeared healthy.

4330. Who is the medical man of that house?—Mr. John Blatherwick.

4332. Had those children dirty habits?—They commenced their dirty habits the first or second night after their admission.

4334. What observation did the medical man make upon hearing of that?—None in particular.

4336. What did you do to correct those habits?—Withheld part of the food.

4342. Were the visiting guardians made acquainted with the food being diminished?—Yes, they did not object to it. Half of the food for the day was stopped.

4348. Was any punishment also had recourse to?—The children were placed in the stocks frequently, both standing and sitting, and were kept in them from meal to meal, at the same time that their food was diminished, I believe. When the schoolmistress intimated to me that it did not appear to have any effect upon their filthy habits, I desired her to discontinue withholding their food, or any other punishment.

4359. How soon after they were in the house did the schoolmistress observe to you that their health appeared to decline?—I suppose a month. . . .

4639. Will you read the dietary of the workhouse for young children?—On the Sunday, children under nine years of age have three ounces of bread for breakfast, and one pint of gruel with milk; the dinner is one pint of meat soup, half a pound of potatoes, and three ounces of bread; supper, four ounces of bread, one ounce of cheese, or half an ounce of butter; Monday, for breakfast, five ounces of bread, one pint of gruel with milk; dinner, eight ounces of suet pudding; supper, five ounces of bread, one ounce of cheese, or half an ounce of butter.

4641. On Monday were these children almost always deprived of half that sustenance?—The Monday was the same as any other day; they were not punished more than twice or three times a week. (The dietary of the other days in the week was detailed by the witness.)

4643. *By* Mr. MILES] Are the Committee to understand that, with this dietary those dirty children were punished frequently three times a week by half that allowance being stopped?—Yes.

4645. Give the number of ounces of food for the whole week?—286; nine ounces of which is meat; potatoes, 32 ounces; cheese, 7 ounces; pudding, 8 ounces; three pints of soup; and a pint of gruel every morning.

4689. *By* Mr. HARVEY.] You received back one-half of the allotted food of the diminished meals of children?—Yes.

4694. What is done with it?—It is put up for the next meal.

4696. Is it at the discretion of the mistress to withhold food as a punishment?—Yes, and also to put children in the stocks.

4717. You have stated that the children were taken to an outhouse; is it a room, or a stable, or a washhouse?—It is a plastered room on the other side of the yard, originally intended for a workshop, with a stone floor.

4720. Is there any fire-place in it?—No.

4722. At what period of the year were the children confined in that room?—In January.

*** "Oliver Twist" was first published in 1837 in *Bentley's Miscellany*.—ED. L.

ROYAL SOCIETY CONVERSAZIONE

AMONG the exhibits at the Royal Society's conversazione on May 4th was one by Prof. H. H. Woollard, who showed radiograms of lymphatics made opaque by injection of thorotrast and barium. They demonstrated the longitudinal pattern of the vessels in the extremities and the circular arrangement around the trunk. The lymphatics above were seen to converge on the axilla and those below on the groin, the dividing line being about the middle of the trunk. The injection of lymphatics near a carcinoma showed that normal lymphatics traverse the mass, that many lymphatics about the carcinoma remain patent and contain no carcinomatous cells. Normal lymphatics pass from the growth to lymph glands found to contain metastases; it was concluded that carcinomatous cells occasionally rupture into a lymphatic vessel and are carried as emboli to the gland. Injections of thorotrast into the living had been used to investigate lymphatic œdema and obstruction, and also the lymphatic flow in skin transplantation and pedicle grafting. This part of the work had been done in coöperation with Sir Harold Gillies. Recently another opaque material which contained no thorium had been devised for injection.

Mr. F. C. Bawden and Mr. N. W. Pirie of the Rothamsted Experimental Station and the department of biochemistry, University of Cambridge, showed some of the peculiar physical properties of nucleo-proteins obtained from virus infected plants. These proteins are believed to have the largest molecules yet known, the molecular weight being of the order of 17,000,000. They are obtainable only from infected plants and are capable of transmitting the disease even in extremely high dilutions (1 in 10^{10}). They are prepared from the plant by solution and precipitation; the precipitate is dissolved again and the final material bears a quantitative relation to its infectivity. It is specific in its relation to the plant and, when injected in great dilution into rabbits, can produce antigens. Another exhibit, by Mr. J. D. Bernal and Dr. I. Fankuchen, was of the X ray pictures of this protein in various states. The molecules had been shown to be rod shaped with a cross-section diameter of 15 $\mu\mu$ but with lengths probably greater than 100 $\mu\mu$.

During recent years several substances having growth-promoting properties have been isolated from plants. Three, called auxin *a*, auxin *b*, and hetero-auxin, are now recognised, the last being β-indolyl acetic acid, a substance which has been synthesised. It is only known to promote growth in plants. It was the object of an exhibit by Imperial Chemical Industries Ltd. When painted on one side of seedlings grown in the dark it caused them to grow crookedly from overgrowth of that side; when applied to tomato plant stalks it had induced root formation quite high on the plant; when put on cuttings it was found to assist the vigorous formation of rootlets.

Lieut.-Colonel A. J. Peile showed the dart-like radulæ of a mollusc which lives in the Indian Ocean; the animal uses them for injecting a poisonous substance into its prey but occasionally, it is said, the poison has caused paralysis and even death in man.

Other exhibits were of models of protein molecules, including ones for pepsin and insulin (Mrs. Dorothy Wrinch, D.Sc.) and modifications of dominance in mice (Prof. R. A. Fisher and Mr. K. Mather, Ph.D.), while for the delight of the curious there were bells which sounded when touched with solid carbon dioxide, human teeth fluorescing in ultra-violet light, and earphones with which to listen to beetles in timber.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. A. de B. Joyce and W. G. C. FitzPatrick to *President* for Medical Department.

Surg. Comdr. (D) S. E. Brown to *Resource*.

Surg. Lt.-Comdr. (D) E. R. Longhurst and Surg. Lt. (D) W. R. Knott to *Caledonia*.

The following have been appointed Admiralty Surgeons and Agents:—

Mr. B. E. Hawkins (Anerley-road, S.E.20) for London District No. 8 (Catford, Dulwich, &c.); Mr. F. A. Anderson (Stranraer) for Stranraer; Mr. F. E. Higgins (Sudbury, Suffolk) for Sudbury; Mr. J. Cullen (Northampton) for Northampton; and Mr. A. C. Ainsley (West Hartlepool) for West Hartlepool.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt.-Comdr. (D) G. P. Monk placed on the Retd. List.

L. F. Donnan entered as Proby. Surg. Lt.

ROYAL ARMY MEDICAL CORPS

Short Service Commissions.—Lts. to be Capts.: J. A. MacDougall, J. C. A. Marchand, and D. Wright.

Lt. (on prob.) A. F. H. Keatinge is confirmed in rank.

ARMY DENTAL CORPS

Short Service Commission: E. Smith, B.D.S., to be Lt. (on.prob.).

TERRITORIAL ARMY

Capt. W. H. G. Park to be Maj.

Capt. F. Lawrence resigns his commission.

Lt. A. Bennett, from 7th Bn. Cheshire R., to be Capt.

To be Lts.: H. R. J. Donald (late Cadet Corpl., Winchester Coll. Contgt., Jun. Div., O.T.C.); Edwin Fulford (late Offr. Cadet, Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.); R. J. McGill (New Zealand Forces, Res. of Off.); W. B. Evans; H. B. Collins; and K. G. Sugden.

ROYAL AIR FORCE

Group Capt. T. Montgomery to Headquarters, R.A.F., India, New Delhi, for duty as Principal Medical Officer.

Flight Lts. S. B. S. Smith to Central Medical Establishment, London; R. C. H. Tripp to No. 1 School of Technical Training (Apprentices), Halton; C. A. Rumball to R.A.F. Institute of Pathology and Tropical Medicine, Halton; and J. S. Wilson to No. 8 (Bomber) Squadron, Aden.

Flying Offrs. D. F. Cameron to Home Aircraft Depôt, Henlow; W. T. Buckle to No. 5 Flying Training School, Sealand; J. D. Milne to No. 9 Flying Training School, Thornaby; J. C. Taylor to No. 10 Flying Training School, Tern Hill; H. O'B. Howat to No. 11 Flying Training School, Wittering; and C. E. G. Wickham to R.A.F. Station, Marham.

AUXILIARY AIR FORCE RESERVE OF OFFICERS

Flying Offr. T. E. Cawthorne relinquishes his commission on completion of service.

INDIAN MEDICAL SERVICE

The War Office announces that with the approval of the Government of India, Major-Gen. G. G. Tabuteau, D.S.O., late R.A.M.C., Deputy-Director of Medical Services, Northern Command, York, has been selected to succeed Major-Gen. E. A. Walker, C.B., M.B., F.R.C.S. Edin., K.H.S., I.M.S., as Director of Medical Services, India, with effect from August 10th, 1937, when the latter will vacate the appointment. (Vide also *Lancet*, April 10th, p. 895.) Major-Gen. Walker has been granted leave pending the vacation of his appointment.

Col. W. J. Powell, C.I.E., I.M.S., V.H.S., is appointed Hon. Surg. to the King, vice Major-Gen. A. W. M. Harvey, I.M.S., retired.

Lt.-Cols. H. B. Scott, O.B.E., and A. L. Sheppard retire.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) A. L. Elloy retires.

(Continued at foot of next page)

MEDICAL NEWS

University of Cambridge

On May 1st the following degrees were conferred :—

M.B., B.Chir.—*G. D. Pirrie, *A. B. Evans, *P. J. Wenger-Byrne, A. H. Knowles, N. A. Buxton, L. A. Collins, G. C. L. Pile, H. T. H. Wilson, F. I. Evans, L. N. G. Lytton, A. C. Blandy, A. A. D. La Touche, I. W. MacKichan, D. S. Scott, E. D. Hoare, and R. J. Porter.

M.B.—*H. S. Allen, *G. C. Milner, *H. C. Maclaren, A. Monck-Mason Payne, *Frederic Bush, *J. F. Lown, *W. A. Briggs, *F. H. Morrell, *H. B. Dodwell, *C. M. Ryley, *D. A. Smith, A. B. R. Finn, E. O'D. C. Grattan, J. H. Moseley, D. R. Seaton, T. G. Armstrong, R. J. Buxton, B. S. C. Gaster, A. M. Barry, A. M. Weston, C. E. R. Wood, H. K. Meller, Edward Sharp, A. F. Bryson, Frank Clifton, P. A. Walford, J. E. A. David, Rupert Solley, E. P. H. Drake, H. S. H. Gilmer, T. B. L. Bryan, R. E. K. Levick, J. R. G. Harris, and R. B. Heisch.

* By proxy.

University of London

At a recent examination for the diploma in psychological medicine G. A. FitzPatrick passed with special knowledge of mental diseases. G. L. Ashford and Augusta G. Harrison passed in part A of the examination.

Royal College of Physicians of London

At a meeting of the college held on April 29th, with Lord Dawson, the president, in the chair, the following members were elected fellows :—

Arthur Cecil Alport, M.D. Edin. (London); Thomas Pearse Williams, M.D. Lond. (London); William Noel Goldsmith, M.D. Camb. (London); Henry Fitzgerald Maudsley, M.D. Melb. (Melbourne); Lewis Ralph Yealland, M.D. Ontario (London); Francis Joseph Bentley, M.D. Durh. (London); Ernest Noble Chamberlain, M.D. Liverp. (Liverpool); Francis Wiremu Brian Fitchett, M.D. Edin. (New Zealand); Jeffrey Ramsay, M.D. Lond. (Blackburn); Frank Dutch Howitt, M.D. Camb. (London); Oscar Brenner, M.D. Birm. (Birmingham); Benjamin Branford Morgan, M.D. Edin. (Norwich); Douglas Kinchin Adams, M.D. Glasg. (Glasgow); Percy Selwyn Selwyn-Clarke, M.D. Lond. (Nigeria); William Sydney Charles Copeman, M.D. Camb. (London); Sidney Smith, M.B. Lond., Brevet Lieut.-Colonel R.A.M.C. (Hong-Kong); Edward Humfrey Vere Hodge, M.D. Camb., Lieut.-Colonel I.M.S. (Calcutta); Charles Cady Ungley, M.D. Durh. (Newcastle-upon-Tyne); Richard Desmond Curran, M.B. Camb. (London); Allan William Spence, M.D. Camb. (London); Robert Stevenson Aitken, M.B. N.Z. (London); Arnold Ashley Miles, M.A. Camb. (London); Harry Edward Mansell, M.B. Oxon. (London); Thomas Anwyl-Davies, M.D. Lond. (London); Dame (Anne) Louise McIlroy, M.D. Glasg. (London); Edward Johnson Wayne, M.B. Leeds (Sheffield); Henry Ashbourne Treadgold, M.D. Lond., Group Captain, R.A.F.M.S. (Elstree); Harold Kingston Graham-Hodgson, M.B. Durh. (London); Reginald St. Alban Heathcote, M.D. Oxon. (Cardiff); Philip Graham Stock, M.B. Brist. (London); John Frederick Wilkinson, M.D. Manch. (Stockport); and under By-law XXXVIII (*b*) Ernest Laurence Kennaway, M.D. Oxon., D.Sc. Lond., F.R.S. (London); William Porter MacArthur, D.Sc., M.D. Belf., Major-General R.A.M.C. (London).

The following were admitted members of the college :—

Mohammed Attia Abboud, M.B. Cairo; Sitaram Damodar Ambegaonker, M.B. Bombay; John Bennet, Major R.A.M.C., M.D. Edin.; Roy Clarke, M.B. Oxon.; Ewan Lawrie Corlette, M.B. Sydney; Guy Pascoe Crowden, M.Sc. Lond., L.R.C.P.; Emmanuel Andrew Danino, M.D. Lond.; Leslie John Davis, M.D. Edin.; William Alexander Elliott, M.B. Camb.; Ahmed Mahmoud El Nakah, M.B. Cairo; Noel Gordon Harris, M.D. Lond.; George William Hearn, M.B. Lond.; Charles Anthony Hinds-Howell, M.B. Oxon.; Kenneth Tamworth Hughes, M.B. Sydney; Archibald Louis Percy Jeffery, M.D. Lond.; Manoah Robert Kark, L.R.C.P.; Heneage Marchant Kelsey, M.B. Lond.; Frederick Harold Kemp, M.B. Birm.; Phyllis Margaret Kerridge, M.Sc., Ph.D. Lond., L.R.C.P.; Samuel Lazarus, M.D. Glasg.; Archibald John McCall, M.B. Liverp.; Murray McGeorge, M.B. N.Z.; Richard Alfred Amyas Pellew, M.B. Adelaide; William Gwynfryn Rees, M.B. Oxon.; John Samuel Richardson, M.B. Camb.; Charles Ronald St. Johnston, M.B. Birm.; Joseph Smart, M.B. Camb.; Seth Kenneth Squires, M.B. Lond.; Stephen James Lake Taylor, M.B. Lond.; Henry Renwick Vickers, M.B. Sheff.; Denis John Williams, M.D. Manch.; and Reginald Alexander Wilson, M.D. McGill.

Licences to practise were conferred upon 212 candidates (193 men and 19 women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the college. The following are the names and medical schools of the successful candidates :—

E. W. O. Adkins, Guy's; W. C. Aman, Univ. Coll.; M. S. Ambrose, St. Mary's; E. F. Aubert, Camb. and St. Thomas's; W. C. Baird, Middlesex; T. M. Banham, Camb. and St. Thomas's; R. O. Barber, Guy's; P. F. Barwood, St. Bart.'s; J. G. Berry, W'rand and St. Bart.'s; D. W. Beynon, Lond.; S. L. Biswas, Calcutta and St. Bart.'s; R. G. Blackledge, Oxon. and St. Thomas's; J. Bleakley, St. Mary's; G. Bourne, Camb. and St. Thomas's; Agnes Y. Bowie, Liverp.; I. G. Braddon, Camb. and Lond.; R. H. F. Brain and J. H. Briscoe-Smith, Birm.; A. E. W. Brooker and K. C. Brown, St. Bart.'s; R. S. Bunny, Lond.; P. J. Burke, Manch.; J. H. Burkinshaw, Camb. and Lond.; C. S. Cane, St. Bart.'s; C. A. G. Cato, St. Thomas's; H. W. Chaifetz, Middlesex; A. Chambers, Westminster; L. R. Chaperon, Univ. Coll.; Norah H. C. Clarke, Roy. Free; O. W. W. Clarke, Lond.; May D. C. Clifford, Roy. Free; N. F. Coghill, Camb. and Westminster; A. Cohen, Univ. Coll.; S. M. Cohen, Cape and King's Coll.; J. C. A. L. Colenbrander, Guy's; D. G. Cracknell, St. Thomas's; F. M. Crawshaw, Camb. and St. Thomas's; N. C. Creighton, Guy's; J. A. Currie, St. Thomas's; J. B. Cuthbert, Cape and St. Bart.'s; Mary D. Daley, Roy. Free; A. J. Dalzell-Ward, Char. Cross; J. B. Dancer, St. Bart.'s; S. B. Darbishire, Camb. and Liverp.; A. R. Darlow, Guy's; C. M. Dickins, Camb. and St. Bart.'s; Cecile R. Doniger, Univ. Coll.; V. Drosso, Guy's; Katherine W. Dunn-Pattison, Roy. Free; A. E. H. Eades, Birm.; J. D. Ebsworth, Guy's; Violet E. Ellam, King's Coll.; M. El S. M. El-Shanawany, Univ. Coll.; G. E. Ennis, St. Thomas's; P. G. L. Essex-Lopresti, Lond.; Kathleen J. Evers, Univ. Coll.; G. A. Fairlie-Clarke, St. Bart.'s; Rachel D. Fidler, Roy. Free; R. D. Flintan, Middlesex; G. A. Fowler, Camb. and Leeds; Audrey U. Fraser, Roy. Free; R. T. R. Freshwater, Birm.; H. W. C. Fuller, King's Coll.; E. Garland-Collins, Lond.; S. Garnjana-Goonchorn, Guy's; R. G. Gibson, St. Bart.'s; D. S. Gideon, St. Mary's; J. C. Gilson, Camb. and Lond.; Dorothy M. Gladwell, Roy. Free; M. Glick, Leeds; E. G. Godwin, St. Mary's; B. H. Goodrich, St. Bart.'s; C. W. C. Gough, Camb. and St. Thomas's; G. W. V. Greig, Leeds; A. C. Grey, Oxon, and St. George's; A. Griffiths, Cardiff; G. L. Gryspeerdt, St. Thomas's; I. A. Guest, Camb. and Birm.; D. V. Hague, Birm.; H. Haigh and S. G. Hamilton, Camb. and Lond.; H. E. W. Hardenberg, Guy's; D. W. T. Harris, Univ. Coll.; R. W. H.-G. Harris, Cape and St. Mary's; G. F. C. Hawkins, Oxon. and St. Thomas's; M. J. M. Heap, Manch.; S. H. Heard, Char. Cross; J. A. Herd, Manch.; A. J. Heriot, King's Coll.; J. Herman, Lond.; P. S. A. Heyworth, Camb. and Liverp.; A. P. Hick, St. Thomas's; K. R. Hill, Westminster; G. B. Hollings, St. Thomas's; J. N. Horne, Camb. and St. Thomas's; N. C. Horne, King's Coll.; J. G. Humble, Westminster; Sybil M. Humphreys, Univ. Coll.; K. K. Hussain, Leeds; D. L. Isaac, Camb. and St. Mary's; D. N. Jackman, Univ. Coll.; G. James, Guy's; N. E. James, Lond.; D. Jefferiss, Oxon. and Middlesex; S. T. H. Jenkins, St. Bart.'s; W. H. R. Jeremy, Camb. and St. Bart.'s; J. G. Jesson, Camb. and St. Thomas's; A. W. Johnson, Lond.; G. M. Johnson, Guy's; J. S. Joly, St. Bart.'s; D. W. G. Jones, Camb. and St. Bart.'s; J. D. Jones, St. Thomas's; R. A. Jones, Univ. Coll.; O. Jordan, St. Mary's; P. T. Joseph, Madras and Lond.; N. Jungalwalla, Rangoon; L. C. Kalra, Char. Cross; B. K. Kapur, Punjab and Lond.; J. Kastelian, Westminster; J. H. H. Keall, St. George's; Gladys E. Keith, Roy. Free; P. M. Kelly, Camb. and St. Thomas's; G. M. Kerr, St. Thomas's; P. Kidd, Camb. and Lond.; J. R. Kilpatrick, Guy's; E. J. Lace, Brist.; H. B. Lal, Rangoon and Manch.; E. V. Lambert and L. P. Lassman, Lond.; N. G. Latey, Bombay; J. M. Lea and A. R. Leask, Guy's; A. R. Lee, Sheff.; I. Libman, Liverp.; A. E. Loden, Guy's; Christia F. Lucas, Birm.; G. L. St. A. McClosky, Middlesex; T. O. McKane and M. E. Mankin, St. Bart.'s; A. J. Martin, Camb. and St. Thomas's; D. Matthews, Cardiff; E. Maung, Rangoon and Birm.; R. M. Miller, Camb. and Lond.; D. Moss, Lond.; S. N. Mukherjee, Calcutta and West Lond.; Winifred F. G. Murray, Roy. Free; B. Mushin and R. H. Neeve, Lond.; Elizabeth A. Nettell, Roy. Free; C. P. Nicholas, Birm.; M. P. Nightingale, Cape and St. Thomas's; A. J. Nimmo, St. Thomas's; W. A. Owen, St. Bart.'s; L. B. Paling, Camb. and St. George's; E. A. Pask, Camb. and Lond.; R. W. J. Patterson, Rangoon; Constance E. Peaker, Camb. and Leeds; C. C. S. Pike, St. Mary's; C. S. Pitt, Guy's; G. E. J. Porter, St. Mary's; H. L. Porter, Camb. and St. Thomas's; H. C. Price, Birm.; S. H. Raza, Guy's; J. A. Rhind, Leeds; G. R. Richards, Oxon and Cardiff; I. D. Riley, Leeds; R. Roaf, Oxon. and Liverp.; G. M. Robertshaw, Lond.; Annie I. B. Ross, Roy. Free and Birm.; Mary C. Rowe, Roy. Free; K. C. Royes, Oxon. and St. Thomas's; N. Sacks, Lond.; A. R. Samuel, Camb. and Lond.; F. H. Scadding, Middlesex; C. G. Scorer, Camb. and Lond.; C. W. Seward, Oxon. and Middlesex; Constance M. B. Shaw, King's Coll.; G. Shneerson, St. Mary's; R. J. Simms, Guy's; D. A. Slade, Univ. Coll.; J. M. Small, Birm.; A. W. Stewart, Camb. and Lond.; J. F. Stokes, Camb. and Univ. Coll.; H. Stoll, Guy's; W. G. Sutcliffe, St. Thomas's; S. Tarlovskis, Univ. Coll.; W. Taylor, St. Mary's; I. E. J. Thomas, Guy's; J. H. Thomas, Cardiff; L. C. Thomson, Guy's; R. W. Thomson, St. Bart.'s; G. G. Thyne, St. Thomas's; D. J. D. Torrens, Camb. and St. Thomas's; R. L. Townsend, Camb. and Univ. Coll.; I. S. Varma, Bombay and West Lond.;

(*Continued from previous page*)

DEATHS IN THE SERVICES

The death occurred on April 29th of Lt.-Col. FREDERICK JOSEPH GARLAND, D.S.O., R.A.M.C. (retd.), of Lydd, Kent. Son of the late James Garland of Rathmines, Co. Dublin, he was born in 1877 and was educated at the Royal University of Ireland and qualified M.B. in 1901. He joined the R.A.M.C. in January, 1904, and became capt. in July, 1907. For a time he was at Ahmadnagar, Bombay, and then at Colchester. He served in the European War, 1914–18, was mentioned in dispatches and in 1918 was created D.S.O.

E. Vernon, Manch.; F. H. Vollam, Birm.; G. M. Ward, Lond.; S. Ward and R. W. Watts, Camb. and St. Thomas's; G. V. Webster, Birm.; T. Weiner, St. George's; R. A. White, St. Bart.'s; E. H. L. Wigram, St. Thomas's; O. G. R. H. Williams, Oxon. and Westminster; S. I. Williams and A. D. Willis, Guy's; I. N. Winer, Middlesex; F. A. J. Woodland, Guy's; E. Woolf, Univ. Coll.; and A. S. Woolstone and R. O. Yerbury, Guy's.

Diplomas in tropical medicine and hygiene were conferred (jointly with the Royal College of Surgeons) upon the following:—

H. Akhtar, S. Amarasinghe, R. H. Barrett, A. H. Booth, J. W. Bowden, J. C. Busby, K. L. Buxton, Dorothy G. Cowie, G. H. Fisk, A. B. Gilroy, S. A. Hasib, A. D. Hodges, W. H. Jeffrey, A. Mizrahi, P. P. Murphy, V. T. Pasupati, M. G. Pearson, C. Ponnambalam, J. D. Prasad, J. T. Robinson, M. Roushdy, C. A. Rumball, A. G. Rutter, S. Shrikhande, L. M. de Silva, M. Singh, D. W. Soman, A. S. Syed, A. L. F. Thomson, G. I. Watson, and J. G. Webb.

Lord Dawson was re-elected representative of the college on the governing body of the British Postgraduate Medical School and Dr. Archibald Malloch the representative at the celebration of the fifteenth anniversary of the founding of the College of Physicians of Philadelphia on May 14th. Dr. Edwin Bramwell will deliver the Croonian lectures on clinical reflections upon muscles, movements, and the motor path at the college at 5 P.M. on May 25th, 27th, and June 1st.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—A. A. Beazeley, Guy's Hosp.; N. Bickford, Univ. of Camb. and Middlesex Hosp.; P. H. Denton, Guy's Hosp.; S. M. M. Niall, Royal Colleges, Edin.; and W. G. Tillmann, Guy's Hosp.

Medicine.—P. H. Denton, Guy's Hosp.; G. Howell, Welsh National School of Medicine; L. W. La Chard, St. George's Hosp.; J. F. Mason, Univ. of Calcutta and London Hosp.; A. P. Motley, Royal Colleges, Edin.; and F. L. Skinner, Univ. of McGill.

Forensic Medicine.—P. H. Denton, Guy's Hosp.; G. Howell, Welsh National School of Medicine; L. W. La Chard, St. George's Hosp.; J. F. Mason, Univ. of Calcutta and London Hosp.; A. P. Motley, Royal Colleges, Edin.; and F. L. Skinner, Univ. of McGill.

Midwifery.—D. R. Daniel, Middlesex Hosp.; J. B. Good, Guy's Hosp.; J. F. Mason, Univ. of Calcutta and London Hosp.; and F. D. Pitt Palmer, Middlesex Hosp.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery, and midwifery:—

N. Bickford, S. M. M. Niall, P. H. Denton, F. L. Skinner, and L. W. La Chard.

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty on May 3rd, with Prof. Archibald Young, the president, in the chair, the following were admitted to the fellowship: Joseph Alexander Bell (London), Hatimbai Shaikh Abdulally Malik (Bombay), and George Broughton Smart (India).

National Hospital, Queen-square

The Lord Mayor, Sir George Broadbridge, took the chair on April 27th at a festival banquet given at the Mansion House in aid of this hospital. The guest of honour was the Duke of Kent, who made a moving speech describing the work of the hospital and its great needs. It was, he said, the oldest and largest hospital for nervous diseases in the world. The speed at which life was lived nowadays made a great toll upon everyone's reserves of nervous energy and caused many forms of illness. The hospital had a special claim on those interested in the industrial life of the country. Every step forward in science and mechanisation produced a new source of nervous strain for the workers. Leaders of industry, who had been generous in the past in providing money for research into the application of science to business, would not be deaf to an appeal on behalf of research into the causes and cure of nervous diseases due to the increase of scientific methods in industry. The Rockefeller Foundation would give £120,000 to the new research department if a like sum were raised in this country. The British people could not fail to take up that challenge. Sir Walter Monckton, K.C., supporting the toast, gave figures for the work of the hospital: 1500 in-patients with 300 operations a year. The hospital played, he said, a great part in the propagation of British methods, for 4260 British doctors from all over the world had studied there in the last ten years. A film was then shown illustrating the activities of the hospital and the difficult conditions which the obsolete buildings imposed upon the workers. The amount realised by the appeal at the festival dinner came to about £25,000.

University of Manchester

The Rockefeller Foundation have made a grant of £5000 to be spread over four years, in support of the research work in biochemistry being carried out at the university under the direction of Prof. Heilbron.

Royal Medico-Psychological Association

The examination for the Gaskell gold medal and prize, and the examination for the certificate in psychological medicine, will be held at the Maudsley Hospital, London, on May 26th and 27th. Further information will be found in our advertisement columns.

South-West London Medical Society

The meeting of this society which was to have been held on May 12th has been postponed until May 19th, when Dr. Wilfrid Sheldon will read a paper on abdominal distension in children. The meeting will be held as usual at the Bolingbroke Hospital at 9 P.M.

Gresham College

Four lectures on physic will be delivered at the College, Basinghall-street, London, E.C., by Dr. J. Alison Glover on May 10th, 11th, 13th, and 14th at 6 P.M. He will speak on some aspects of the school medical service, and the lectures will be open to all without fee.

West Kent Medico-Chirurgical Society

The annual dinner of this society will be held at Chiesmans Restaurant, High-street, Lewisham, S.E., on Thursday, May 20th, at 8 P.M. Dr. H. V. Morlock will be in the chair. Tickets may be had from the hon. secretary, 267, Baring-road, Grove Park, S.E.12.

City of London Hospital for Diseases of the Heart

Queen Mary opened the new surgical wing of this hospital on April 29th. The accommodation includes ten single-bed wards specially designed for serious chest operation cases. Patients in these wards will be selected irrespective of whether they are paying patients or not.

Palmer Memorial Hospital, Jarrow

This hospital, which has been in danger of closing down, now has its continuance assured. It owed a sum of money, consisting of loan and interest, amounting to £2875 to Palmer's Shipbuilding and Iron Company, but with the consent of the debenture holders and the High Court this has been cancelled.

Fellowship of Medicine and Post-Graduate Medical Association

The following courses have been arranged to take place during the latter part of May, and during June: thoracic surgery at the Brompton Hospital (May 24th to 29th); urology at St. Peter's Hospital (May 31st to June 12th); gynæcology at the Chelsea Hospital for Women (June 14th to 26th). Week-end courses will be held as follows: physical medicine at the St. John Clinic and Institute of Physical Medicine (May 22nd and 23rd); children's diseases at the Princess Elizabeth of York Hospital (May 29th and 30th); general medicine at the Prince of Wales Hospital (June 5th and 6th), and general surgery at the same hospital (June 19th and 20th); obstetrics at the City of London Maternity Hospital (June 12th and 13th). A clinical and pathological M.R.C.P. course will take place at 8 P.M. on Tuesdays and Thursdays at the National Temperance Hospital (June 1st to 17th). Other M.R.C.P. courses include chest diseases at the Brompton Hospital (twice weekly at 5 P.M., June 7th to July 13th); heart and lung diseases at the Victoria Park Hospital (Wednesdays and Fridays at 6 P.M., June 9th to July 3rd); neurology at the West End Hospital for Nervous Diseases (June 21st to July 3rd). Detailed syllabuses of all courses can be had from the secretary of the fellowship at 1, Wimpole-street, London, W. The annual dinner-dance of the fellowship will take place at Claridge's Hotel, on Friday, May 28th.

THE Central Council of Recreative Physical Training should in future be addressed at Abbey House, Victoria-street, London, S.W.1.

Merseyside Medical Practitioners' Association

At a recent conference of medical practitioners held at the Liverpool Medical Institution the aims and objects of this association were unanimously approved and the support of its work was recommended (see THE LANCET, April 24th, p. 1006).

National Institute of Industrial Psychology

Under the Heath Clark bequest three lectures under the general title of time and movement study will be given at the London School of Hygiene and Tropical Medicine, Keppel-street, W.C. at 5.30 P.M. on Mondays, May 24th, 31st, and June 7th. The lecturers will be Mr. G. H. Miles, D.Sc., formerly director of the institute, Miss A. G. Shaw, investigator to the Metropolitan-Vickers Electrical Company, and Mr. J. A. Edgell, investigator to the institute.

Royal Institute of Public Health

The council of this institute have awarded the Harben gold medal to Sir Gowland Hopkins, O.M., F.R.S., professor of biochemistry in the University of Cambridge. The medal is awarded triennially to the person who in the opinion of the council has rendered the most eminent services to public health. Past recipients include: Louis Pasteur, John Simon, Max von Pettenkofer, Lister, Koch, Metchnikoff, Behring, Roux, Ronald Ross, Sherrington, and Kitasato.

Treloar Hospital and College

On April 29th the trustees of the Lord Mayor Treloar Cripples Hospital and College at Alton entertained the honorary medical board to dinner at the Barbers' Hall. Colonel Frederick Lawson, the chairman, said that eight years had passed since the last occasion of the kind, and spoke of the appropriateness of meeting in the City. One lord mayor, Sir William Treloar, was the founder and inspirer of the work; another, Sir William Dunn, had served as treasurer; and many of their successors had recognised their paternal duties. The work of the medical board, he continued, had expanded since the definition of "cripple" had been extended to almost every kind of disability; and the devotion of its chairman, Mr. O. L. Addison, for all these years "is beyond my power to describe." The first of the board's two functions was to put the ideas of Sir Henry Gauvain, the medical superintendent, before the trustees—ideas that had won the hospital a world-wide reputation. Their second function was to engage in the actual work of the hospital, and Colonel Lawson expressed the trustees' high appreciation of the services thus given. Mr. Addison, responding for the board, spoke of changes in the type of patient and the severity of the disease seen at Alton. The hospital had been founded to deal with surgical tuberculosis, which was then unprovided for otherwise, the cases being crowded into children's hospitals under unsuitable conditions. Other institutions had since been started and surgical tuberculosis was now a disappearing disease unfamiliar to the younger medical generation. At Alton, instead of a nine months' waiting-list, they now had very few cases of tuberculosis waiting to come in, and they had therefore enlarged the scope of the hospital so that they were prepared to take almost any kind of disease. Sir Henry Gauvain, who proposed the health of the City Corporation, disclaimed credit for the hospital but said his life there had been very happy. Sir Charles Batho, responding, said that the City had never dispensed money to better purpose than to Alton. Sir Charles Gordon-Watson, proposing The Worshipful Company of Barbers, gave his reasons for thinking that their picture of Henry VIII presenting the charter, though they think it is by Holbein, is really only a copy of the one belonging to the Royal College of Surgeons of England. But Mr. Maurice Hovenden, the master, refused to be drawn into the controversy and contented himself and his hearers by showing some of the company's other treasures.

Those present included Sir Frederick Menzies, Miss Florence Treloar and Mr. T. J. Harrowing (trustees), Miss D. H. G. Holborow (matron), and the following members of the medical board or consulting staff: Mr. Addison, Mr. P. Maynard-Heath, Dr. R. S. Frew, Dr. Reginald Lightwood, Mr. E. A. Lindsay, Dr. L. S. T. Burrell, Dr. J. T. Hunter, Mr. T. Pomfret Kilner, Sir Charles Gordon-Watson, Prof. E. W. Hey Groves, Dr. J. H. Thursfield, Mr. A. Simpson-Smith, Dr. F. H. Young, Mr. N. A. Jory, Mr. J. H. Doggart, Dr. R. A. Lyster, and Mr. R. L. Vollum, D.Phil.

Birmingham Hay-fever Clinic

At the annual meeting of the Birmingham Ear and Throat Hospital it was announced that a clinic has been established there this year where treatment will be available for those who suffer from hay-fever.

Birmingham United Hospital

This hospital (formerly the General Hospital and the Queen's Hospital) during last year treated 121,395 patients. There was a small surplus on the year's workings, and an increase of nearly £6000 in ordinary income. The contributory association gave £76,923, an advance of £3000 on the previous year.

Tuberculosis in Sweden

The Swedish National Anti-Tuberculosis Association is arranging an inquiry into the incidence of tuberculosis in various trades and occupations, especially among workers aged 18–25. An inquiry carried out by students on their own initiative showed that at least 2 per cent. were infected, most of them having no knowledge of the fact. Since then typographers, tobacco-workers, and bus employees have been investigated and are said to have proved surprisingly free from the disease. According to the Swedish International Press Bureau a study of 14,000 children going on in the Norrland provinces shows that in those regions of the far north the death-rate from tuberculosis is three times as great as in more southern provinces. Recently, however, the number of fatal cases has considerably dropped.

Golden Jubilee of St. John Ambulance Brigade

The St. John Ambulance Brigade will celebrate its jubilee after the coronation, beginning with a reception at St. John's Gate on May 14th. It was formed in 1887 and by its connexion with the Order of St. John of Jerusalem is part of the oldest order of chivalry in the world, having its commencement in the eleventh century. The strength is now 101,917 (men, women, and cadets) in this country and overseas. As commandant-in-chief of the nursing corps and divisions, the Queen will take part in the jubilee celebrations by reviewing the Brigade in Hyde Park on May 22nd. Other arrangements include a garden party at St. James's Palace on May 18th, given by the Duke of Connaught as grand prior of the Order, a service at St. Paul's on the 23rd, and an investiture at Buckingham Palace on the 25th.

Tuberculosis Association

The annual provincial meeting of this association will be held at the Central Library, Manchester, on June 10th, 11th, and 12th under the presidency of Dr. S. Roodhouse Gloyne. The first session will begin at 2.15 P.M. on June 10th when Dr. Geoffrey Marshall and Mr. H. Morriston Davies will read a paper on how long collapse therapy should be delayed. Mr. J. E. H. Roberts will also speak on bronchiectasis in pulmonary tuberculosis, and Dr. O. M. Mistal (Montana) on pleural effusions after thoracoplasty. On the following morning the first paper will be given by Dr. P. J. L. De Bloeme (Laren, Holland) on the treatment of unilateral pulmonary tuberculosis. Afterwards there will be a symposium on difficulties in dealing with the tuberculosis problem at which Prof. A. Ramsbottom will speak as a consulting physician, Dr. W. F. Jackson as a general practitioner, Dr. A. Dove Cormac as medical superintendent of a mental hospital, Dr. R. E. Lane as medical officer to a large factory, and Dr. D. P. Sutherland as a tuberculosis officer. In the afternoon a visit will be paid to the Manchester Sanatorium at Baguley. At the last session Dr. J. B. McDougall will read a paper on the tomograph, and Dr. C. D. S. Agassiz a paper on artificial pneumothorax in children. Problem cases will be presented by Dr. E. H. A. Pask and Dr. G. Jessel. In the afternoon visits will be paid to other sanatoriums in the neighbourhood. Further information may be had from the hon. secretary of the association, Manson House, 26, Portland-place, London, W.1.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Second Hon. Ophth. Surgeon.
Altrincham General Hosp.—Sen. and Jun. H.S.'s, at rate of £150 and £120 respectively.
Ashton-under-Lyne District Infirmary.—Res. Surg. O., at rate of £200.
Barnsley, Beckett Hosp. and Dispensary.—Cas. O., £250.
Battersea General Hosp., Battersea Park, S.W.—Res. H.S., at rate of £130. Also H.P. and Cas. O., at rate of £120.
Bedford County Hosp.—Second H.S., at rate of £150.
Benenden, Kent National Sanatorium.—Med. Supt., £600.
Birmingham, Ear and Throat Hosp.—Second H.S., £150
Birmingham, Queen's Hosp.—Res. Surg. O., £150.
Bolingbroke Hosp., Wandsworth Common, S.W.—Cas. O. and H.S., each at rate of £120.
Bootle General Hosp.—Hon. Orthopædic Surgeon.
Botleys Park Colony, near Chertsey, Surrey.—Med. Supt., £1000.
Bournemouth, Royal National Sanatorium.—Res. Asst. M.O., £200.
Bradford Children's Hosp.—H.S., £100.
Brighton, Royal Alexandra Hosp. for Sick Children.—H.S., £120.
Brighton, Royal Sussex County Hosp.—H.S., £150.
Bristol Royal Infirmary and Bristol General Hosp.—Two Hon. Radiologists. Also Radio-Diagnostician, £500.
British Postgraduate Medical School, Ducane-road, W.—Asst. in Bacteriology in Dept. of Pathology, £300.
Cardiff, King Edward VII Welsh National Memorial Assoc.—Three Area Asst. Tuber. Physicians, each £500.
Cleaver Sanatorium for Children, Heswall, Cheshire.—Res. Asst. M.O., £300.
Connaught Hosp., Walthamstow, E.—Cas. O., at rate of £100.
Coventry and Warwickshire Hosp.—Hon. Asst. Surgeon. Also Res. H.S., Cas. O., and Res. H.S. for Aural and Ophth. Depts., each £125.
Croydon County Borough.—Deputy M.O.H. and Deputy School M.O., £720.
Derby, County Mental Hosp., Mickleover.—Laboratory Asst. £200.
Dewsbury and District General Infirmary.—Second H.S., £150.
Downpatrick, Down County Mental Hosp.—Jun. Asst. M.O., £350.
Dudley, Guest Hosp.—Second H.S., £120.
East Ham Memorial Hosp., Shrewsbury-road, E.—H.S. to Spec. Depts., and Cas. O., at rate of £120.
Evelina Hosp. for Sick Children, Southwark, S.E.—H.P., at rate of £120.
Exeter, Royal Devon and Exeter Hosp.—H.S. to Ear, Nose, and Throat Dept., at rate of £150.
Farnborough Public Assistance Hosp.—Res. Asst. M.O., £250.
French Hosp. and Dispensary, Shaftesbury-avenue, W.C.—Hon. Radiologist.
Gloucestershire Royal Infirmary, &c.—H.P., at rate of £150.
Gordon Hosp. for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S., at rate of £150.
Great Barr Park Colony, near Birmingham.—Jun. Asst. Res. M.O., £275.
Hampstead General and North-West London Hosp., Haverstock-hill, N.W.—Cas. M.O. and Cas. Surg. O. for Out-patient Dept., each at rate of £100.
Hastings, Royal East Sussex Hosp.—Jun. H.S., at rate of £150.
Hosp. for Tropical Diseases, 25, Gordon-street, W.C.—Hon. Asst. Physician. Pathologist, £750. Also H.P., at rate of £120.
Huddersfield County Borough.—Asst. School M.O., £500.
Hull Royal Infirmary.—First H.S., H.S. to Ophth. and Ear, Nose, and Throat Dept., and Second Cas. O., each at rate of £150.
Ilford, King George Hosp.—H.S., at rate of £100.
Kettering and District General Hosp.—Res. M.O. and Second Res. M.O., at rate of £160 and £140 respectively.
Leeds General Infirmary.—Hon. Physician.
Leicester City Mental Hosp., Humberstone.—Locum Tenens Asst. M.O., 10 guineas per week.
Liverpool City.—Pathologist, £750.
Liverpool Heart Hosp.—Hon. Asst. Physician.
London County Council.—Temp. District M.O., £250. Also Temp. M.O., at rate of £100.
London Homœopathic Hosp., Great Ormond-street, W.C.—Gynæcological H.S., at rate of £100.
London Jewish Hosp., Stepney Green, E.—Res. M.O. and H.P., at rate of £150. Also Res. H.S. and Res. Cas. O., each at rate of £100.
London University.—University Readership in Obstetrics and Gynæcology for British Postgraduate Med. School, £800.
Maidstone, Preston Hall Sanatorium.—Asst. M.O., at rate of £200.
Maidstone, West Kent General Hosp.—H.S., £175.
Manchester, Ancoats Hosp.—Hon. Reg. for Ear, Nose, and Throat Dept. Also Orthopædic Reg., £50.
Manchester City Education Committee.—Psychiatrist, £500.
Manchester, Park Hosp., Davyhulme.—Second Res. M.O., at rate of £225.
Manchester Royal Eye Hosp.—Jun. H.S., £120.
Manchester and Salford Hosp. for Skin Diseases.—Two Asst. M.O.'s, £100.
Middlesex Hosp., W.—Jun. M.O. for Radio-therapy Dept. and Asst. for Dept. of Physical Medicine, each £300.
Miller General Hosp., Greenwich-road, S.E.—Two H.P.'s. Also H.S., each at rate of £100.
Newport, Mon., Royal Gwent Hosp.—H.S., at rate of £135.
Northwood, Mount Vernon Hosp.—Clin. Pathologist, £500.
Nottingham General Hosp.—H.S. to Ear, Nose, and Throat Dept., and Two Res. Cas. O.'s, each at rate of £150.
Oldham Municipal Hosp.,—Res. Asst. M.O., at rate of £200.
Oldham Royal Infirmary.—H.S., at rate of £175.
Oxford Eye Hosp., Walton-street.—H.S. to Ophthalmic Dept., £150.
Plymouth, Prince of Wales's Hosp.—Res. Surg. O., H.S., at rate of £225 and £120 respectively. Jun. H.S., at rate of £120. Also Hon. Physician, Hon. Physician with charge of Out-patients, and Hon. Ophth. Surg.
Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Res. Anæsthetist, at rate of £100, Res. Anæsthetist and Dist. Res. M.O., at rate of £90. Also Asst. Res. M.O., £80.
Queen's Hosp. for Children, Hackney-road, E.—H.S., at rate of £100.
Reading, Royal Berkshire Hosp.—Res. Cas. O., and H.S. to Spec. Depts., each at rate of £150.
Rotherham Hosp.—Cas. H.S., £150.
Royal Chest Hosp., City-road, E.C.—Clin. Asst.
Royal Free Hosp., Gray's Inn-road, W.C.—Asst. Physician. Also Sen. Res. M.O., £150.
Royal Naval Medical Service.—M.O.'s.
Royal Waterloo Hosp. for Children and Women, Waterloo-road, S.E.—Res. Cas. O., at rate of £150. Also H.S., at rate of £100.
St. Bartholomew's Hosp., E.C.—Asst. Physician and Asst. Director to Med. Professorship Unit.
Salisbury General Infirmary.—Res. M.O., £250.
Shrewsbury, Royal Salop Infirmary.—Res. H.S., at rate of £160.
Southampton, Royal South Hants and Southampton Hosp.—Sen. H.S., £200, H.P., H.S., Res. Anæsthetist and H.S., &c., and Cas. O., each at rate of £150.
Stoke-on-Trent, Burslem, Hanwood, and Tunstall War Memorial Hosp.—Res. H.S., at rate of £175.
Stoke-on-Trent, North Staffs. Royal Infirmary.—H.S. for Aural and Ophth. Dept., at rate of £150.
Sunderland Royal Infirmary.—Two H.S.'s and one H.P., each £120.
Surrey County Council.—Asst. M.O., £600. Also Jun. Asst. M.O. for County Sanatorium, at rate of £350.
Taunton and Somerset Hosp.—H.P., at rate of £100.
University College Hosp., Gower-street, W.C.—Hon. Physician to Physio-therapy Dept.
Uxbridge, Hillingdon County Hosp.—Jun. Res. Asst. M.O., at rate of £250.
Victoria Hosp. for Children, Tite-street, S.W.—Physio-therapist, £50.
Weir Hosp., Grove-road, Balham, S.W.—Jun. Res. M.O., £150.
West Ham County Borough.—M.O.H. and School M.O., £1500. Also 2nd Asst. Res. M.O. for Central Home, Leytonstone, £350.
West Suffolk County Council.—Asst. County M.O. and Asst. School M.O., £500.
Wickford, Runwell Hosp.—Asst. Res. Physician, £350. Also H.P., at rate of £150.
Wolverhampton, New Cross Hosp.—Res. Asst. M.O., £200.
Wolverhampton, Royal Hosp.—H.S.'s, at rate of £100.
Woolwich and District War Memorial Hosp., Shooters-hill, S.E.—Three Hon. Anæsthetists.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Longridge, Lancashire.

Births, Marriages, and Deaths

BIRTHS

NICOLSON.—On April 13th, at Portsmouth, the wife of Surg. Lt.-Comdr. J. H. Nicolson, R.N., of a son.
NORMAN.—On April 23rd, at Eton, the wife of Dr. H. Bathurst Norman, of a son.
PICKEN.—On April 27th, the wife of Dr. C. B. Picken, Bassett Southampton, of a daughter.

MARRIAGES

COLTART—ASKEW.—On April 24th, at the Church of St. Bartholomew-the-Great, E.C., William Derrick Coltart, F.R.C.S. Eng., to Margaret Askew.
FORSYTH—RULAND.—On April 16th, at St. Mary's River, Labrador, Charles Hogarth Forsyth, M.R.C.S. Eng., International Grenfell Association Service, to Clayre Louise Ruland.
TEARE—GRACEY.—On April 24th, at Burrington, Devon, Robert Donald Teare, M.R.C.S. Eng., of Ramsey, Isle of Man, to Kathleen Agnes, youngest daughter of Lt.-Col. and Mrs. T. Gracey.

DEATHS

DILLON.—On April 27th, at Oxford, Luke Gerald Dillon, O.B.E., M.D. R.U.I., of Bodicote, Oxon., in his 76th year.
LE PELLEY.—On April 30th, at West Bridgford, Notts, Amelia Maitland le Pelley, M.B. Lond.
PARKER.—On April 26th, at Clifton, Bristol, George Parker, M.D. Camb., LL.D.
SARRA.—On April 30th, in London, William Henry Sarra, M.R.C.S. Eng., of Leigh-on-Sea, Essex.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

GIFT OF MATERNITY HOSPITAL.—A maternity hospital is being given by Mrs. Fyfe-Jamieson to the county of Angus. It is estimated it will cost £7000.

NOTES, COMMENTS, AND ABSTRACTS

THE MEDICAL HISTORY OF WILLIAM THE CONQUEROR

BY R. R. JAMES

As a general rule it is an unprofitable venture to speculate on the pathology of a hypothetical case such as that of the last illness of the Conqueror. But William's death offers food for reflection and may even be of interest to such minds as suffer "from a taste for general information, not promptly checked," of which type the classical example is Mr. Joseph Finsbury.

Everyone knows that the Conqueror died as the result of an abdominal injury received during the sack of Mantes in 1087. At this time he was about sixty years of age. Of exceptional strength, he had been a warrior from his youth upwards; even from the moment of his birth his strength was apparent, for when he was laid on the floor after delivery, the "gossips" noticed how he grasped the rushes in his little fists. His life gave ample opportunities for receiving hard knocks.

Before discussing his last illness I should like to draw attention to two serious illnesses of which we have records. The first of these occurred most probably in the year 1062. It is not mentioned by any of the chroniclers and we only know of it from a charter in the cartulary of the cathedral church of St. Mary, Coutances. A transcript of this deed is given by Round in his "Calendar of Documents in France," of which great series it is No. 957. It is undated and is a recital of a charter of William, Duke of the Normans, to the Church of St. Mary. . . . William "while lying ill at Cherbourg, vowed that he would establish three Canons in the church, if God and St. Mary would raise him from his sickness, when his life was wholly despaired of and he was laid on the ground, as at the point of death, and gave the Canons of that church the relics of the Saints which he carried (about) in his own chapel."

One can only suppose, in view of William's after-history, that this must have been some acute infection, but I would not like to offer a diagnosis. Laying a patient on the ground when at death's door would not seem to be the best treatment for such conditions as enteric or pneumonia; but, whatever was the matter, the crisis of the illness seems to have coincided with the patient being turned out of bed on to the floor. William's second illness occurred in the year of the Conquest. After Hastings, the Conqueror had made his base secure by occupying Dover, the castle of which, according to William of Poitiers, he had made into a hospital for invalid soldiers, the army having been seriously infected by dysentery. He then marched towards London along the Roman road, but when at Canterbury, or thereby, he was seized by violent illness, which kept him out of action for a month. I imagine that this illness may have been an acute gastro-intestinal infection.

In spite of these illnesses William must have made a complete recovery, as is instanced by his long march to Exeter early in 1068, by his harrying of the North in the following year, and by that ghastly march across the Pennines from York to Chester in the mid-winter of 1069–70. Coming now to the last year of his life, we know that William had become exceedingly corpulent. He was resting at Rouen, when some kind friend repeated to him the jest of the King of France. This was to the effect that William was lying-in like a woman just delivered from travail. William came out with more than his usual oath, for he swore that "by the resurrection and splendour of God, when I go to Mass after my confinement I will light him up a hundred thousand candles." And about the middle of August, before August 15th, according to Florence of Worcester, he invaded French territory and sacked Mantes.

It should be remembered that most of the English chroniclers were writing at a date later than that of 1087. Even that old gossip Orderic, who was more or less contemporary with the event, does not say anything about any abdominal injury. I suspect that the authority for the statement is William of Poitiers, but his works are not accessible to me. Roger of Wendover and William of Malmesbury,[1] the former probably copying the latter, both mention the fact that the Conqueror received an injury while his horse was leaping a ditch. But most of the other chroniclers merely allude to the heat of the flames and the unequal temperature, while Roger of Hovenden states that, on his return from Mantes, William was attacked by dreadful pains in the intestines from which he grew weaker every day.[2] William of Malmesbury states that the physicians at Rouen,[3] on examining the urine, predicted certain death. The Conqueror did not die till the morning of Sept. 9th, so that at least a month intervened between the injury and death.

If one examines a reproduction of the Bayeux tapestry one gets some idea of the type of saddle of the period. It had a high pommel in front and apparently behind also. In one picture it looks as if the pommel reached nearly up to the level of the umbilicus in front and well into the lumbar region behind. William, of course, would have been clad in mail at the time. He was conscious and able to speak until the end. What lesion could have been produced in such a case? I think we may rule out any perforation of a hollow viscus. Was the extreme pain renal or biliary colic? Was there blood in the urine which made the physicians so sure of death? No one can say for certain, but I do not think the case can have been one of intestinal obstruction from such a condition as strangulated hernia. The possibility of injury to the perineum, bladder, or urethra has to be considered as well as an umbilical hernia, but I should like to suggest biliary or renal colic.

The last scene is in the Abbey of Caen. When they came to put William in his coffin, the monks, anticipating the lament of Mr. Sowerberry, that a few inches over one's calculations make a great hole in one's profits, had made the stone coffin too small. In the attempt to force the body in, the abdomen burst and a horrible stench filled the whole church. In writing this paper I have consulted Freeman's "Norman Conquest" and the "Life of the Conqueror" by Prof. Stenton, as well as the chroniclers mentioned.

REFERENCES

1. William of Malmesbury gives the hearsay report: "Dicunt . . . rupturit, quod in anteriori parte sellæ venter protuberat."
2. Florence of Worcester, who is almost contemporary with the event, states that on William's return to Normandy, after the sack of Mantes, *dirus viscerum dolor illum apprehendit.*
3. The physicians were Gilbert Maminot and Guntard of Jumièges.

MEDICAL EVIDENCE AT LONDON OMNIBUS INQUIRY

ON May 3rd, at the first meeting of the court of inquiry appointed by the Minister of Labour to investigate and report on the issues of the London omnibus strike, Mr. Bevin, in presenting the case for the men, called attention to the uncertainty of meal reliefs and said that the physical reactions of the men were such that they made the men different from those found in other industries, different in the sense that the reactions produced a psychology all its own. He added that there had been a suggestion that carbon monoxide was the principal cause of the trouble and the union had succeeded in getting the problem referred to the Industrial Health Research Board, where it had been now for a couple of years. Dr. James Woodall, chief medical officer at Manor House Hospital, said that from his work there he had

the impression that there was an altogether undue incidence of gastric illness among both drivers and conductors, but admitted that he had not had time to analyse the hospital records. Dr. H. B. W. Morgan, medical officer to the Trades Union Congress, said he had also been struck by the number of men in transport work who complained of gastric symptoms.

At the second meeting of the court on May 4th Prof. Millais Culpin, M.D., who was called by Mr. Bevin, said that he had made a study of occupational circumstances and physical types of patients with organic diseases of the stomach. Three years ago he took the opportunity of examining a number of bus drivers at the Manor House Hospital diagnosed as suffering from gastric conditions. He saw 17 cases himself and 14 were examined by an assistant—primarily to ascertain the extent of nervous symptoms. The interviews lasted from 30 to 40 minutes, the men being allowed to talk freely. He found that in some cases the nervous symptoms were really the ones that mattered. He did not always agree with the hospital diagnosis. Of the 31 cases there were 4 whose nervous symptoms were severe enough to call for treatment, some of them being, in his opinion, unfit to drive. From 6 men he elicited no nervous symptoms, but added a note implying his opinion that the men were of stable type but might break down. In reply to the chairman, Dr. Culpin said that 17 of the men complained spontaneously about speed, 10 of inspection, 9 about fumes, 7 about vibration, and 5 complained of being afraid of the company's medical officer.

In reply to a question from Mr. Bevin, Dr. Culpin said that this preliminary examination had led him to the view that there was at least a strong prima-facie case for a very thorough investigation into the effect of all these things on the men.

The court consists of Mr. John Forster (chairman), Sir Arthur Pugh, and Mr. Basil Sanderson.

DANGEROUS DRUGS REGULATIONS

WE have received from the Home Office copies of draft regulations which it is proposed to make under Sections 3 and 7 of the Dangerous Drugs Act, 1920. The proposed new regulations under Section 3 which relates to raw opium, coca leaves, and Indian hemp, will make no change in the existing law and are solely for the purpose of consolidating the rules in force by which the distribution of the substance named is controlled and restricted. The main purpose of the proposed new regulations under Section 7 of the Act is to make substantive the provisional rules which were made a year ago with the object of bringing the regulations of 1928 into conformity with the Poisons and Pharmacy Act, 1933, but it is also proposed to make certain other amendments. We will refer only to those which have a bearing on the prescribing of dangerous drugs. In Regulation 8 a slight alteration is made so that the provision exempting prescribers of medicines under the National Health Insurance Acts from fulfilling certain obligations shall be extended to prescriptions given in connexion with the health services of local authorities.

THE MEANING OF "TWO OR THREE TIMES"

Amendments are being made in paragraphs 2 and 3 of Regulation 9 for the purpose of resolving doubts which have arisen as to the meaning of "two or three times." The proposed new paragraphs are as follows:—

(2) If a prescription expressly states that it may, subject to the lapse of a specified interval or of specified intervals, be dispensed a second or third time, the drug or preparation thereby prescribed may, as the case may be, be supplied a second or a third time after the specified interval or intervals and no more, but, subject as aforesaid, a prescription shall not for the purposes of these regulations be taken to authorise the drug or preparation prescribed to be supplied more than once.

(3) The person dispensing a prescription shall, at the time of dispensing it, mark thereon the date on which it is dispensed, and in the case of a prescription which may be dispensed a second or third time, the date of each occasion on which it is dispensed, and shall, unless it is a health prescription, retain it and keep it on the premises where it is dispensed and so as to be at all times available for inspection.

Alterations proposed in Regulation 11 are the insertion of the common names (eucodal) for dihydrohydroxycodeinone, (dicodid) for dihydrocodeinone, and (dilaudid) for dihydromorphinone.

AN AMENDMENT AND A REDRAFTING

Regulation 14 is being amended in order to make it clear that signed orders for dangerous drugs must be preserved for a period of two years in the same way as other documents relating to such drugs.

Regulation 16, as redrafted, is as follows:—

Nothing in these Regulations shall apply to—

(*a*) any of the drugs or preparations mentioned in the fourth schedule (see below) to these regulations or to a drug or preparation which has been denatured in manner approved by the Secretary of State;

(*b*) (i) any prescription issued for the purposes of a scheme for testing the quality and amount of the drugs and appliances supplied to insured persons under the National Health Insurance Acts, 1924–1935, and the regulations made thereunder; (ii) any prescription issued to a sampling officer for the purposes of the Food and Drugs (Adulteration) Act, 1928.

THE FOURTH SCHEDULE

The amendment to the Fourth Schedule is one of the most important being made in these regulations. In order to bring English legislation into line with the International Conventions with regard to "exempted preparations," a Declaration by His Majesty in Council is being made with effect from July 1st, exempting from the Acts (and consequently the regulations) all the preparations which have been exempted from the International Opium Convention, 1925, on the recommendation of the Health Committee of the League of Nations. The effect of this Declaration in Council is that from July 1st the Dangerous Drugs Acts will not apply to the preparations named in the Schedule to the Declaration, and therefore export licences will not be required for the export of such preparations. The Fourth Schedule is as follows:—

Pulv. Cretæ Aromat. c. Opio, B.P. 1932.

Cocaine Eyedrops—a preparation consisting of an admixture of cocaine in castor oil with mercuric chloride in a proportion of not more than one part in 200 of cocaine and not less than one part in 3000 of mercuric chloride.

Methylmorphine and ethylmorphine and their respective salts and any preparation, admixture or other substance containing any proportion of methylmorphine or ethylmorphine associated with an inert substance whether solid or liquid; and preparations and admixtures or other substances containing more than 2·5 per cent. of methylmorphine or ethylmorphine (calculated as pure drug) associated with other medicinal substances.

Methylmorphine and ethylmorphine will be exempted from these regulations because they are subject to a separate code of regulations which remains unaltered. Certain preparations of these drugs are also included in this Schedule because, as the result of an Order in Council, Part III of the Dangerous Drugs Act, 1920, is being applied to them as from May 1st, but they are not being brought under these regulations which deal only with the home trade. A further amendment to this Schedule is the insertion of cocaine eyedrops. The effect of this amendment is to remove this preparation from control by the regulations. In consequence, factory owners and others will be free to purchase this preparation and the authorities granted in 1921 to these persons will be revoked as from the date on

which these regulations come into operation. *Pulv. Cretæ Aromat. c. Opio* will continue to be exempt from the regulations. Licences will be required, however, for the export of drugs in this schedule from the United Kingdom.

PRESERVATION OF MENTAL HEALTH

FOR the prevention or avoidance of a mental break-down Dr. C. C. Easterbrook recommends that the person with a nervous predisposition should clearly recognise his weakness and that others with whom he comes into important contact should recognise it as well (*Med. Offr*, April 17th, p. 161). The personal or direct evidence of instability will include a previous history of any psychosis or neurosis or of morbid tendencies, faulty habits, and vices; some congenital or nervous defect; a neurotic or degenerate physiognomy or physique, or an abnormal reaction to the ordinary experiences of life. The great consolation which he sees for the person with a nervous constitution is that the neurotic is the potential pioneer; neurosis and psychosis are weeds, indicating a fertile soil which will produce genius and inventive ability. If the neurotic would avoid a break-down, says Dr. Easterbrook, he must lead a quieter life and take greater care of his health than his more stable brother. There are, of course, types of neurosis which have as their principal expression a pampering of the body or mind and a shrinking from stress and responsibility, and Dr. Easterbrook would probably admit that for patients like this it is more important to get outside themselves and experience the rough-and-tumble of life. There are many psychoses, minor as well as major, which cannot be avoided by any amount of care or self-knowledge; illnesses which in fact forbid self-knowledge by their very nature.

RECALCITRANCE AT MEAL-TIMES

AMONG journals of practical puericulture the monthly magazine called *Parents*, now in its fourth volume, has won itself a good place. Those who have children on their minds will nearly always find something enlightening in its pages, and the contributions are apt to be both sane and interesting. Contributors to the March issue include Dr. Victoria Bennett, Dr. Winifred de Kok, Dr. A. Morris Johns, Dr. L. Appell, and Dr. Lindsey Batten. Dr. Batten's article entitled "Do you dread mealtimes?" is concerned with the child who does not respond to the suitable food provided for him, and his advice deserves wider circulation. He begins by pointing out that food requirements vary enormously and that the parent must not insist too much on convention: "some children seem to have a natural preference for the continental breakfast." The real question is whether the child thrives on what he takes. If he is actually eating too little for his health, and if his small appetite is a cause rather than a symptom, it will be necessary to look into his motives for refusing food. The self-assertive instinct—the desire for fame, notoriety, or power—causes most of the trouble, and Dr. Batten's rule is that it is always wrong to comment on a child's behaviour in his presence. "We should treat him in this respect exactly as we treat a respected friend or guest. We do not comment, in his presence, on our guest's small appetite, or his habit of not eating fat; it would offend him and it will either offend our child or it will make him feel important and encourage him to do it again. . . . There is very little to choose between praise and blame, all comment is bad." A warning is also given against conflicts, and it is here that the adult should exercise his far-seeing sagacity. "Is it to be a row about pudding? Offer no pudding at all. Who knows but by tea-time it may be regarded as a treat. Is it some particular article of diet? Banish it from the child's plate, or even from the table for some weeks and try again." As for discipline, Dr. Batten holds it perfectly reasonable to make and enforce a rule that a child who refuses his meat-course shall have no pudding, or that he shall finish what he has asked for; "but orders must be reasonable, polite, and unemotional, the mother ought to have a shrewd idea that they are likely to be obeyed without a fuss and (once more) there must be no comments at all. The child must be induced to believe that whether he eats or leaves his dinner is a matter of indifference to everyone present, but at the same time everyone does, as a matter of fact, eat their dinners, and he will do the same."

Parents of younger children may get more immediate profit from an article on Peaceful Bedtimes, by Mary Chadwick, S.R.N., which appears in the May issue of the same journal.

THE LURE OF LONDON

IN his third report on the special areas the commissioner, Mr. Malcolm Stewart, drew attention to the recent immense growth of the outer ring of London, the population of which, in the twelve years 1921–33, increased by 1,066,222 as compared with an increase of 1,397,078 in the rest of England and Wales. This increase was due mainly to migration from inner London and from the provinces. The reduction of the congestion of inner London is, of course, wholly desirable. Migration from the provinces depends largely on the fact that London, the best market in Europe, provides an irresistible attraction to new ventures. To the Londoner this concentration of population brings with it increasing difficulties, expense, and loss of time in the transport of himself and his goods and makes him increasingly vulnerable to attack. To the rest of England and Wales this removal of a largely young adult population to London and the setting up of most new industries in that area is a serious matter and is well exemplified by the returns of the Port of London, which has increased its share of the foreign trade of England and Wales from 15 per cent. in 1913 to 20 per cent. in 1935, while the west coast ports have shown a fall of 11 per cent. in the same period.

We see then that the lure of London, the favourite theme of the Victorian novelette, is a very real thing at the present day and that the "streets paved with gold" legend persists in a practical form. In "Metropolitan Man"[1] Mr. Robert Sinclair sets himself to demolish this legend and to show that every institution and habit of life that the Londoner holds dear is muddled, inefficient, or undesirable. His business, his leisure, his sewers, hospitals, public health organisation, education, town-planning, and transport are discussed in turn and the general impression conveyed is one of unmitigated gloom. The most casual reader is soon driven to remark that things really cannot be as bad as all that. Mr. Sinclair's method of producing his effect is: firstly, to omit any evidence which may show a satisfactory or improving state of affairs; and, secondly, to warp or to state his statistics in such a way as to give an alarming and often misleading impression to the mind of the reader. He omits or explains away such things as the care of the pre-school child at infant welfare centres, the steady fall in infant mortality and tuberculosis, and by confusing nutrition with nourishment, arrives at the startling result that one in six of London's children is under-nourished. By further arithmetical gymnastics he shows that the children in schools found to be verminous amounted to 14 per cent. when the true figure was 3 per cent. When his figures are correct the lay mind may still be led astray. One may quote: "50 per cent. of children and 97 per cent. of adults are infected with tuberculosis." "One in three of Londoners dies in the workhouse." "For every miner's chance of being killed in a mine the Londoner has six chances of injury in the street." He adds to the horror by referring to hospitals as lazar-houses, to errors of refraction as blindness and

[1] Metropolitan Man. By Robert Sinclair. London: Allen and Unwin. 1937. Pp. 353. 10*s*. 6*d*.

to minor ailments as disease, and he comes to the conclusion that "the greatest metropolis of the twentieth century is dirty, poor, unorganised, factious, ignorant, aimless, and leaderless." If this does not deter Mr. Malcolm Stewart's migrating thousands, nothing will.

INACTIVITY IN THE TREATMENT OF PUERPERAL FEVER

THE essence of the "absolute abstention" method of treating puerperal fever, according to an exponent, J. B. González, is to refrain from all local examination or treatment, trusting to the patient's own resistance to overcome the infection. The medical attendant must be content, therefore, with a presumptive diagnosis and must be prepared to persist in his course of masterly inactivity even when the patient's condition appears to be growing worse. Writing in the *Semana Médica* for March 4th González says that, since 1919, he has treated all cases of puerperal fever in the maternity department of the hospital at Durand in this way, with results which he describes as excellent. He gives no figures, however, and while he must have credit for early condemnation of unnecessary interference, it is, unfortunately, impossible to believe that the patients' own resources, if left entirely to themselves, can generally be relied upon to reduce the mortality, as in his experience, almost to nil.

THE DIRECTOR OF RESEARCH

THE *Deutsche Medizinische Wochenschrift* for March 19th devotes several pages to a discussion of mentalities and tendencies in such centres of learning as Heidelberg, Würzburg, and Jena. Writing from the Würzburg Medical and Neurological Hospital, E. Grafe asks: "Are the collaborators of the heads of hospitals and institutes to work as an orchestra with a definite programme and playing previously chosen music under the baton of a conductor? Are we to train members of an orchestra or soloists and prospective conductors?" In support of the latter alternative, reference is made to two great German physiologists living at the end of the last century. Carl Ludwig and Eduard Pflüger may rank as equals as far as their own contributions to science are concerned, but their influence on their surroundings was as dissimilar as possible. Pflüger had need only for assistants willing to work on the lines he laid down, and he parted with them as soon as he caught them straying. The result of this policy was that he founded no great school. Ludwig, on the other hand, filled many a chair of learning throughout the world with his pupils, some of whom followed disciplines quite different from his own. He was satisfied with merely stimulating his pupils to stimulate themselves, and he left it to them to follow their own bent. He believed in developing the individuality and gifts of his pupils in as congenial a scientific atmosphere as possible. It is pleasant to-day to see this contrast drawn by a German who leaves no doubt that it is Ludwig's method that has his sympathies.

THE COLORIMETRIC DETERMINATION OF OXIDATION-REDUCTION BALANCE.—A communication from the B.D.H. Analytical Laboratories. Second edition, revised. Published by The British Drug Houses Ltd., Graham-street, London, N.1. Pp. 19. A compact introduction to the theory and practice of the use of indicators to determine oxidation-reduction potentials is provided by this little book. It describes simply the nature of electrode potentials, gives the oxidation-reduction curves of some of the more usual indicators, and briefly indicates for what purposes these indicators may be employed. Practical methods such as the testing of sewage effluents, the testing of milk by the methylene-blue test, and the recent applications of the indophenol indicators to assay of vitamin C are mentioned. A brief guide to a few of the numerous publications on this subject is included. The book is free to medical men.

Appointments

ABERNETHY, CHRISTINE, M.B. Glasg., D.P.H., D.M.R., Radiological Officer at Ancoats Hospital, Manchester.
ALLEN, J. S., M.B. Belf., D.P.M., Second Assistant Medical Officer at the Manor, Epsom (L.C.C.).
BELL, G. J., M.B. Lond., D.P.M., Second Assistant Medical Officer at Park Prewett Mental Hospital, Basingstoke.
DUCKWORTH, G., M.R.C.P. Lond., Hon. Dermatologist to St. John's Hospital, Lewisham.
LISNEY, A. A., M.B. Dubl., D.P.H., Deputy Medical Officer of Health and Deputy School Medical Officer for Leicestershire.
MITCHELL, M.B. Belf., F.R.C.S. Edin., Resident Surgical Officer at the Beckett Hospital and Dispensary, Barnsley.
MURRAY, R. C., M.B. Camb., F.R.C.S. Eng., Registrar to the Orthopædic and Fracture Department of the Royal Infirmary, Liverpool.
RUDOLF, G. DE M., M.R.C.P. Lond., D.P.H., D.P.M., Hon. Physician to the British Hospital for Functional Mental and Nervous Disorders (Forbes Winslow Memorial), London.
SANDS, D. E., M.R.C.P. Edin., D.P.M., Second Assistant Medical Officer at Claybury Hospital (L.C.C.).
SUGGIT, S. C., M.B. Lond., F.R.C.S. Eng., Assistant Surgeon to the Royal Ear Hospital, University College Hospital, London.
TIPPETT, G. O., M.B. Lond., F.R.C.S. Eng., Assistant to the Orthopædic Department of the Croydon General Hospital.
WARDLE, E. N., M.Ch. Orth. Liverp., F.R.C.S. Eng., Hon. Assistant Orthopædic Surgeon to the Royal Southern Hospital, Liverpool.

Medical Diary

SOCIETIES

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.
MONDAY, May 10th.—8 P.M., Annual General Meeting. 8.30 P.M., Dr. R. A. Young: Perspective and Poise in Practice. (Annual oration.)
MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.
THURSDAY, May 13th.—8.30 P.M. (11, Chandos-street, W.), Dr. T. A. Ross: The Psychological Approach.
WEST KENT MEDICO-CHIRURGICAL SOCIETY.
FRIDAY, May 14th.—8.45 P.M. (Miller General Hospital), Dr. H. V. Morlock: Advances of Modern Medicine. (Presidential address.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF CAMBRIDGE.
MONDAY, May 10th.—5 P.M. (St. John's College), Prof. A. V. Hill, F.R.S.: The Heat-production of Muscle and Nerve. (Linacre lecture.)
UNIVERSITY OF BIRMINGHAM.
TUESDAY, May 11th.—4 P.M., Prof. L. G. Parsons: General Nutrition: Nutrition and Nutritional Diseases of the Erythron; the Inter-relation of Iron and Calcium in Nutrition.
THURSDAY.—4 P.M., Prof. Parsons: The Rôle of Vitamin C in Disease: Multiple Deficiency States, the Effect of Certain Alimentary Disorders on the Absorption of Carbohydrates. (William Withering lectures.)
BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
MONDAY, May 10th.—2.30 P.M., Dr. C. W. Buckley: Arthritis. 4.30 P.M., Dr. W. E. Gye: Experimental Cancer Research.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Mr. A. K. Henry: Demonstrations of the Cadaver of Surgical Exposures. 3.30 P.M., Dr. Helena Wright: Birth Control.
FRIDAY.—2 P.M., operative obstetrics. 3 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.
WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, May 10th.—10 A.M., Dr. Post: X Ray Film Demonstration, skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.
TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.
MANCHESTER ROYAL INFIRMARY.
TUESDAY, May 11th.—4.15 P.M., Mr. W. R. Douglas: Lesions of the Common Bile-duct.
FRIDAY.—4.15 P.M., Mr. D. M. Sutherland: Demonstration of Surgical Cases.